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## SPECIAL ARTICLES

Influenza Prevalence and Mortality in the United States

Effect of High-Frequency Electric Field on Paramœcium



UNITED STATES  
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## UNITED STATES PUBLIC HEALTH SERVICE

HUGH S. CUMMING, *Surgeon General*

### DIVISION OF SANITARY REPORTS AND STATISTICS

Asst. Surg. Gen. R. C. WILLIAMS, *Chief of Division*

The PUBLIC HEALTH REPORTS are issued weekly by the United States Public Health Service through its Division of Sanitary Reports and Statistics, pursuant to acts of Congress approved February 15, 1893, and August 14, 1912.

They contain: (1) Current information of the prevalence and geographic distribution of preventable diseases in the United States in so far as data are obtainable, and of cholera, plague, smallpox, typhus fever, yellow fever, and other communicable diseases throughout the world. (2) Articles relating to the cause, prevention, or control of disease. (3) Other pertinent information regarding sanitation and the conservation of the public health.

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# PUBLIC HEALTH REPORTS

VOL. 44

FEBRUARY 15, 1929

NO. 7

## INFLUENZA PREVALENCE IN THE UNITED STATES

The number of influenza cases reported to the Public Health Service for the week ended February 2, 1929, was lower than the number for any earlier week since December 1, 1928.

For the last week of January (ended February 2) the health officers of 43 States reported 25,000 cases. (See p. 356.) For the preceding week these States reported 55,000 cases.

In New York State influenza was reported from 72 places in 33 counties for the week ended January 26, 1929, and from 16 places in 9 counties for the week ended February 2. The peak of the epidemic in New York State (outside of New York City) appears to have come during the week ended January 19, 1929.

The table on page 350 gives the number of deaths from influenza and pneumonia in 78 large cities, by weeks, from December 9, 1928, to February 2, 1929. The total number of deaths from influenza and pneumonia reported in these cities for the week ended February 2 was 2,227 (incomplete returns), as compared with 2,870 for the preceding week. The largest number of deaths from each of these causes and from both combined (4,079) occurred during the week ended January 12, 1929.

## THE NATURE OF THE EFFECT OF A HIGH-FREQUENCY ELECTRIC FIELD UPON PARAMÆCIUM

By H. KAHLER, *Biophysicist*, H. W. CHALKLEY, *Physiologist*, and CARL VOEGTLIN, *Chief, Division of Pharmacology, Hygienic Laboratory, United States Public Health Service*

This paper may be considered as a contribution to the broad problem of the effect of different kinds of radiant energy upon living matter.<sup>1</sup> The most fundamental aspect of this problem unquestionably deals with the nature of the biological effect, or, to put it differently, the study of the essential physical or chemical cause of the

<sup>1</sup> The majority of the experiments to be described deal with an alternating electrostatic instead of an electromagnetic field. Strictly speaking, only the latter can be regarded as radiant energy.

biological action. It is with this phase of the problem that we are here primarily concerned.

That under certain conditions a high-frequency field may exert a powerful action upon living organisms is shown by a few papers of more or less recent date. Gosset, Gutmann, Lakhowsky, and Magrou (1924) found that plant tumors are destroyed. Schereschewsky (1926) observed severe symptoms and lethal effects in exposed mice. In a later paper (1928) the same observer reports the destruction of malignant tumors by placing them within the high-frequency field. During the progress of our work a brief paper by Hosmer (1928) appeared, reporting the production of fever in man and rats, an observation previously made by Schereschewsky in mice.

Inasmuch as marked temperature effects were observed by these workers, and because the complexity of structure of the higher animals would undoubtedly make the analysis of such effects, if complicated with other factors, a matter of great difficulty, a unicellular organism; *Paramecium caudatum* was selected as material for this study. This organism offers the advantage of quick temperature adjustment to the surrounding medium, as well as simple structure and ease of direct observation. A further advantage consists in the fact that this organism exhibits active cellular division, making it possible to study the effect of exposure on this property.

#### PHYSICAL PART

For generating the high-frequency oscillatory current, standardized and well-known equipment was used. For the lower frequency, 10,000 kc., a 50-watt tube (UV 211), with 1,000 volts on the plate, was used. The details of the hook up are shown in Figure 1.

When a 75-watt short wave transmitting tube (UX 852) was connected as shown in Figure 2, with the proper bias, powerful resonance could be obtained at 75,000 kc. (4 m). The length of the waves generated by the first equipment was measured with a wave meter calibrated by the Bureau of Standards, and that of the second equipment by the well-known Lecher parallel wire system. For placing the radio equipment at our disposal we wish to thank Dr. W. R. Whitney of the General Electric Co.

In these circuits radio currents of one to two amperes were used, such currents being satisfactory for our purpose.

It will be noticed from the circuit diagrams that material to be exposed to a general electrical field could be placed either between the condenser plates, C, or near the inductance coil, L. Electrostatic fields predominate at C, while at L powerful electromagnetic fields exist. In general, it is more convenient to put the material at C,

but for the sake of completeness some tests were also made at the position L.

To obtain some information concerning the conditions under which heating of nonliving systems occurs, high-resistance materials, such as solid NaCl, distilled water, aqueous sugar solutions, and benzene were exposed to the electrostatic field. No appreciable heating occurred in any of these materials.

On the other hand, exposure of *conducting* solutions to the field without exception resulted in heating. For this purpose about 250 c. c. of the solution, contained in a rectangular glass jar, was placed between the condenser plates. The oscillator was started and the temperature rise of the solution was plotted against time of exposure.

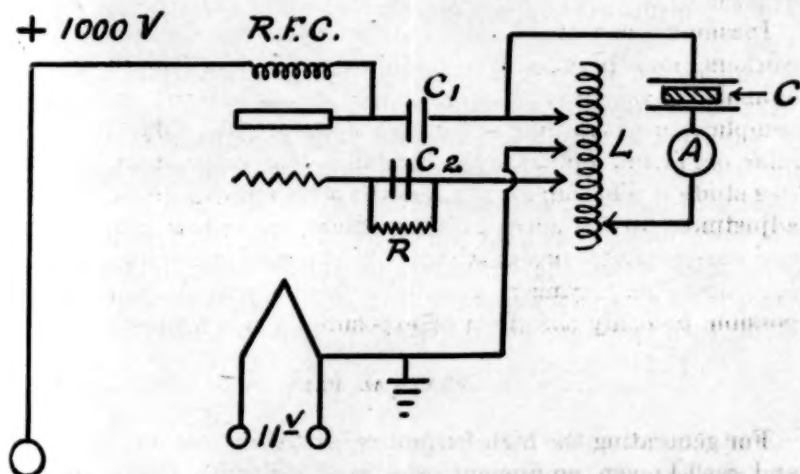


FIG. 1.—10,000 kc. (=30-meter wave) oscillator  
 C=material exposed between condenser plates  
 $C_1=0.03$  M. F. D.;  $C_2=0.002$  M. F. D.  
 R=10,000 ohm resistance; L=inductance coil  
 A=ammeter

It was found that for the 30-meter equipment, solutions of different inorganic salts of approximately 0.003 normal concentration gave the maximum rate of heating. Higher and lower concentrations gave less heating. This dependence of the maximum heating effect upon concentration is explained by the well-known fact that for a given oscillator tube and circuit there is a certain load impedance for which the output is at a maximum.

Two effects which have to be allowed for are the skin effect and the increase of capacity current with frequency. At radio frequencies most of the current in the solution is concentrated near the surface, and so vigorous stirring is necessary in order to secure a uniform temperature. This effect is more pronounced at 4 meters than at 30 meters.

The capacity current is proportional to the frequency. Hence, at higher frequencies for the same total current there is less heating current, and so a vessel was devised having a smaller electrostatic capacity and holding a smaller volume of fluid for the 4-meter runs. With this vessel, heating could be obtained comparable to that of the 30-meter set-up.

#### BIOLOGICAL PART

The *Paramæcia* were cultured in mass cultures, a salt solution being used consisting of NaCl 0.5 g.; KCl 0.04 g.; NaHCO<sub>3</sub> 0.02 g.; CaCl<sub>2</sub> 0.02 g.; Ca(H<sub>2</sub>PO<sub>4</sub>)<sub>2</sub> 0.01 g.; H<sub>2</sub>O 5,000 c. c. To this was added 5 to 10 g. of wheat.

The organisms were approximately 0.25 mm. in length and 0.1 mm. in breadth.

Examinations of the organisms during the experiments were made with a Bausch and Lomb binocular dissecting microscope, using 15x oculars and 2x objectives, and with a compound microscope, using 10x compensating ocular and 8 mm. apochromatic objective.

Counts of the organisms were made by taking a measured quantity of the suspension from the container and placing it beneath the dissecting microscope, the individual organisms being removed singly by means of a capillary pipette as counted. Experiments were carried out with two wave lengths, namely, 30 meters and 4 meters.

#### EXPERIMENTS WITH 30-METER WAVE LENGTH EQUIPMENT

About 250 c. c. of a suspension of *Paramæcium* in the culture medium was placed in a rectangular glass jar which was put between the plates of the condenser, C (fig. 1), and a current of about 1 ampere was passed through the circuit. A mercury thermometer was used to indicate changes in the temperature of the medium. To eliminate distortion of the electric field by the mercury thermometer, the temperatures were read after turning off the oscillator and then inserting a fast reading thermometer. As a check, the temperatures were at times read, using a constantan-iron thermocouple with a potentiometer. The initial temperature of the medium was 30° C, which gradually increased during the 1-hour period of exposure to 41° C. During this time samples of the organism showed that as the temperature of the medium increased, the motility of the organisms likewise increased. At a temperature between 37° and 38° the motion of the organisms became irregular and there was an increasing tendency for the organisms to assume a spherical shape. At about 40° locomotion ceased, but the organisms continued for a short time to rotate about their longitudinal axes. Finally, when a temperature of 41° was reached, the organisms lost all motility, assumed a more or less spherical shape, became somewhat opaque, sank to the bottom of the



container, and many disintegrated. Recovery on removal from the field was never seen in individuals showing opacity.

In order to determine whether this is a purely thermal effect, a second 250 c. c. of suspension from the same culture was gradually heated in a water bath. The rate of heating was approximately the same as in the preceding experiment, and samples were taken for observation as before. The behavior of the organism in this experiment exactly duplicated that observed in the previous one.

Thus far the evidence indicates that the injurious effect of the high-frequency field upon the organism is essentially that due to the rise in temperature in the suspension. From the data presented in the physical part of the paper it will be evident that an increase of temperature might be expected both in the medium and in the organisms, since both contain aqueous solutions of electrolytes.

In order to ascertain whether organisms kept at a sublethal temperature would show any change when exposed in the field for a long period, another lot of the organisms was exposed for two hours. In this case the temperature was kept below 30° C. by cooling. No change in the behavior of the organisms was observed throughout this period. This would indicate that prevention of the temperature rise in the medium also prevents the injurious effect. Further evidence supporting this view was obtained by following the rate of multiplication of these organisms, as compared with that of a lot of the same culture held at the same temperature but not exposed to the field. For a period of four days the rate of multiplication of the two specimens was the same. The rate of multiplication may be regarded as a fairly severe test of the presence or absence of a biological effect.

In view of the fact that an aqueous solution of sucrose placed within the field does not heat much, the behavior of *Paramacium* suspended in such a solution was studied. For this purpose a suspension of organisms from the culture was carefully centrifuged through five changes of a solution containing M/1000 sucrose and exposed to the field in that solution for one and one-half hours. No change was observed in the behavior of the organisms under these conditions.

A further experiment was made in which the organisms were placed in the coil L, Figure 1, where, as previously stated, the electromagnetic field predominates rather than the electrostatic field, as in the preceding experiments in which the condenser plates were used.

For this experiment, 400 c. c. of a suspension of *Paramacia* was placed in a glass tube slightly longer than the coil and having a perforated stopper which served to support a thermometer for the indication of temperature. Stirring was accomplished by shaking the tube manually during the experiment. The initial temperature of the suspension was 24°. The temperature rose gradually during exposure. When the temperature reached 34° the tube was opened



and a sample removed for observation. Further samples were taken when the temperature rose to 38°, 40°, 42°, and 44°. No change in the behavior of the organisms was noted until a temperature of 42° was reached. At this point the changes in form and motility occurred as observed in the previous experiments, and at 44° all organisms were dead.

A control experiment in which a further lot of *Paramæcia* was gradually heated in a water bath was also made. The results duplicated those described for the preceding experiment. It should be noted that the *Paramæcia* used were obtained from a different culture from that which provided material for the previous experiments. This will account for the fact that in these two experiments changes in motility, etc., began to appear at 42° C. instead of 38° C.

#### EXPERIMENTS WITH 4-METER WAVE LENGTH EQUIPMENT

It was thought desirable to carry out some experiments at a higher frequency. With the equipment at hand (see fig. 2) it was convenient to select arbitrarily a 4-meter wave. For these experiments a special container was needed in order to permit sufficient heating in a reasonable length of time, since for the same total current less heating is obtainable throughout the solution at a high frequency than at a lower one. This container was a small round flask, the outer surface being coated with tin foil, which served as one electrode. The second electrode consisted of a test tube filled with mercury, supported within the flask by means of a cork, so that its axis and that of the flask were coincident.

In the first experiment 150 c. c. of a suspension of *Paramæcia* in culture fluid was placed in the container and a current of approximately 1 ampere passed through the circuit. A mercury thermometer was inserted into the culture medium and suspended so that the bulb was about midway between the surface and the bottom of the vessel. The medium was *not* stirred. As the result of the exposure the thermometer temperature gradually rose from 18° to 24° C. At this point the organisms were dead.

Under the conditions obtaining during the previous experiment, unequal heating of the suspension due to "skin" currents may have occurred. Such unequal heating would result in convection currents which would carry the organisms rapidly and repeatedly through the warmer portions of the medium. The experiment was therefore repeated with the additional precaution that rapid mechanical stirring was continued throughout the experimental period. Under these conditions the organisms did not die until a temperature of about 43° was reached.

A control experiment was performed in which the temperature rise was duplicated (as to extent and rate) by heating a second 150 c. c.

of suspension from the same culture in a water bath. In this case also the lethal effect supervened at about  $43^{\circ}\text{C}$ .

Additional evidence as to the essential cause of the lethal effect, in the previous experiments, was obtained as follows: One hundred and fifty c. c. of stock suspension was placed within the field for four hours with *continuous mechanical stirring* and the temperature was allowed to rise to  $35^{\circ}\text{C}$ . At the same time another 150 c. c. of the same stock suspension was allowed to heat in a water bath at approximately the same rate to  $35^{\circ}\text{C}$ . Both suspensions were then cooled. Ten 3-c. c. samples of the suspension previously exposed to the field

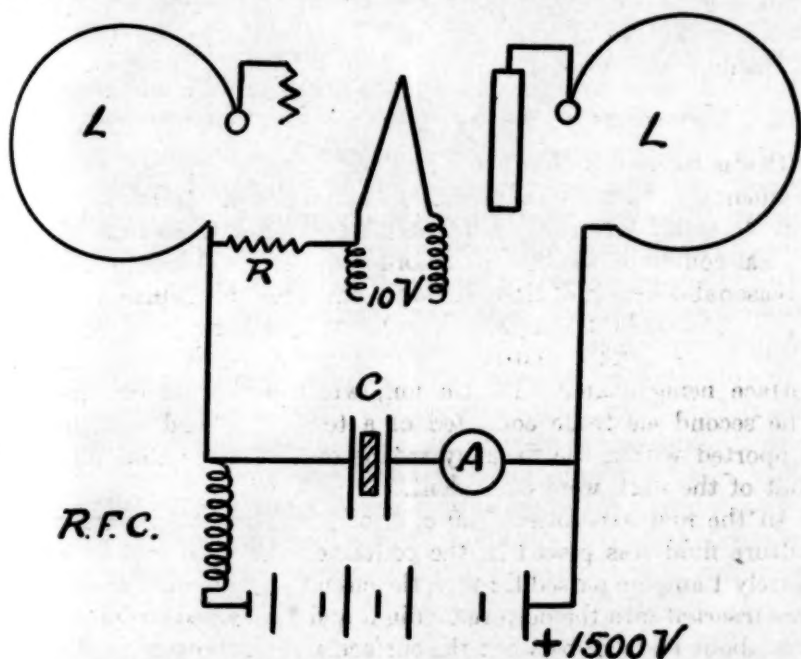


FIG. 2.—75,000 kc. (=4-meter wave) oscillator

C=material exposed between condenser plates

L=4-inch loops; R. F. C.=radio frequency choke

R=bias device, resistor or battery

A=ammeter

were placed in 10 small test tubes, and a similar series was taken from the control suspension. These 20 test tubes were placed in a water bath, the temperature of which was slowly raised under continuous stirring. When the temperature reached  $35^{\circ}\text{C}$ . one test tube of each series was removed and set aside at room temperature. A similar removal of two tubes was made after each subsequent increase of  $1^{\circ}$ , the last two tubes being removed at  $45^{\circ}\text{C}$ . After cooling had occurred, a microscopic examination was made of the contents of each test tube. This revealed the fact that in both series death of the organisms had occurred at the same temperature, approximately  $44^{\circ}\text{C}$ .

## DISCUSSION

The experimental evidence submitted in this paper indicates that the effect of a high-frequency electric field upon *Paramæcium caudatum* depends primarily on the production of a rise in temperature in the organism. This is shown by the following facts:

First. Identical behavior of the organism subjected to a gradual rise in temperature brought about by (a) exposure to the high-frequency field or (b) direct heating. Death occurs in both cases at the same temperature.

Second. Absence of any demonstrable biological effect following long continued exposure of the organism to the field at a sublethal temperature, the temperature rise being prevented either by cooling of the medium or by suspension of the organism in a nonconducting, nonheating medium.

Third. Identical microscopic appearance of organisms killed by exposure in the high-frequency field or by ordinary heating.

Fourth. Identical behavior of the organism when exposed to two electric fields differing in frequency, i. e., 30 and 4 meters, respectively.

The following reasoning on purely physical grounds will further substantiate the above conclusion reached from the results of the biological experiments:

According to the theorem of the equipartition of energy, all molecules at a given temperature carry the same amount of thermal energy. From the kinetic gas theory this energy has a fairly definite value, namely,  $5.6 \times 10^{-14}$  ergs under standard conditions. Now the energy in a quantum of radiation is, by Planck's relation,  $6.5 \times 10^{-27}n$ , where  $n$  is the frequency of vibration. For a frequency in the visible light spectrum  $n$  is approximately  $10^{15}$ . This gives for the energy the value  $6.5 \times 10^{-12}$  ergs. The ratio of  $\frac{6.5 \times 10^{-12}}{5.6 \times 10^{-14}}$  is approximately 100, showing that a quantum of visible light radiation has 100 times the energy possessed by a molecule by virtue of its heat motion. On the other hand, a quantum of 4-meter waves would carry the energy  $6.5 \times 10^{-27} \times 75 \times 10^6 = 5 \times 10^{-19}$  ergs. Dividing  $5.6 \times 10^{-14}$  ergs by  $5 \times 10^{-19}$  ergs gives  $10^5$ , showing that the energy of molecular motion is 100,000 times the quantum energy of a vibration 4 meters long.

Consequently it is obvious that the photochemical effect in the high-frequency field is negligible, compared to the effect to be expected from the ordinary thermal collisions to which the molecules of the system are continually subjected. Therefore, the chief effect would be the occurrence of simple heating, due to the rapidly changing electrostatic field.

## CONCLUSIONS

It is shown that the only demonstrable effect of the exposure of *Paramæcium caudatum* to a high-frequency electrostatic or electromagnetic field is that primarily caused by a temperature increase in the organism. This conclusion is in agreement with deductions made from physical considerations of the effect of the high-frequency field on nonliving systems. Valid conclusions can be obtained only if due consideration is given to the control of certain complicating factors, such as the so-called skin effect and the energy output of the generating circuit.

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 Hosmer, Helen R.: Science, 1928, vol. lxviii, 1762.  
 Schereschewsky, J. W.: Pub. Health Rep., 1926, vol. 41, p. 1939.  
 Schereschewsky, J. W.: Pub. Health Rep., 1928, vol. 43, p. 927.

## NOTIFIABLE DISEASES IN CITIES OF THE UNITED STATES, 1927

The annual summaries of reports of notifiable diseases during 1927 in large cities, over 100,000, and in small cities, 10,000 to 100,000 population, have been compiled by the Public Health Service from data furnished by the health officers of the cities and will soon be issued in pamphlet form. The summary for large cities will be published as Supplement No. 70, and that for small cities as Supplement No. 72.

The following table gives a comparison of the rates for some of the principal communicable diseases in the large cities of the United States for the years 1922, 1923, 1924, 1925, 1926, and 1927:

	Cases		Deaths			Cases		Deaths	
	Number of cities	Cases per 1,000 population	Number of cities	Deaths per 1,000 population		Number of cities	Cases per 1,000 population	Number of cities	Deaths per 1,000 population
Chicken pox:					Influenza—Continued.				
1922.....	68	1.60	68	0.001	1924.....		80		.008
1923.....	77	2.02	77	.001	1925.....		86		.151
1924.....	82	2.45	82	.001	1926.....		66		.286
1925.....	69	1.89	69	.001	1927.....		75		.135
1926.....	68	2.24	68	.001	Lethargic encephalitis:				
1927.....	73	2.46	73	.001	1924.....		68		.022
Diphtheria:					1925.....		58		.022
1922.....	73	2.25	73	.135	1926.....		59		.020
1923.....	77	1.97	77	.132	1927.....		65		.017
1924.....	82	1.67	83	.111	Measles:				
1925.....	69	1.39	69	.100	1922.....	72	5.26	72	.080
1926.....	70	1.33	70	.097	1923.....	77	7.11	77	.076
1927.....	76	1.63	76	.108	1924.....	80	4.36	83	.048
Influenza:					1925.....	69	3.32	69	.032
1922.....			70	.161	1926.....	70	7.92	70	.082
1923.....			77	.207	1927.....	72	3.07	72	.030



	Cases		Deaths			Cases		Deaths	
	Number of cities	Cases per 1,000 population	Number of cities	Deaths per 1,000 population		Number of cities	Cases per 1,000 population	Number of cities	Deaths per 1,000 population
<b>Mumps:</b>					<b>Smallpox—Continued.</b>				
1922	66	.72	66	.0005	1926	70	.16	70	.0009
1923	69	.75	69	.0005	1927	76	.14	76	.0003
1924	75	1.66	76	.0006	<b>Tuberculosis (all forms):</b>				
1925	66	.67	66	.0006	1922			72	1.010
1926	63	.76	63	.0009	1923			77	.981
1927	69	1.60	69	.0005	1924			82	.962
<b>Pneumonia (all forms):</b>					1925			69	.926
1922			74	1.359	1926			69	.900
1923			75	1.514	1927			75	.829
1924			83	1.347	<b>Tuberculosis (respiratory system):</b>				
1925			68	1.327	1922			64	.870
1926			69	1.450	1923			67	.846
1927			77	1.093	1924			70	.821
<b>Polio-myelitis:</b>					1925			60	.790
1924	66	.07	72	.010	1926			61	.779
1925	63	.05	63	.013	1927			70	.722
1926	62	.03	62	.006	<b>Typhoid fever:</b>				
1927	75	.09	77	.014	1922	73	.19	73	.033
<b>Scarlet fever:</b>					1923	77	.19	77	.033
1922	73	1.80	73	.033	1924	81	.22	83	.034
1923	77	2.07	77	.035	1925	68	.21	69	.035
1924	82	2.15	82	.027	1926	69	.16	69	.028
1925	68	2.26	68	.026	1927	74	.14	76	.020
1926	70	2.13	70	.024	<b>Whooping cough:</b>				
1927	76	2.37	76	.021	1922	76	1.67	76	.004
<b>Smallpox:</b>					1923	77	1.56	81	.054
1922	75	.17	75	.0119	1924	65	1.68	68	.056
1923	78	.18	78	.0014	1925	67	1.92	67	.064
1924	83	.50	83	.0164	1926	72	1.43	77	.038
1925	69	.25	69	.0139					

## COURT DECISIONS RELATING TO PUBLIC HEALTH

*Statutory provisions requiring devices, etc., for protection of employees against occupational diseases upheld.*—(Missouri Supreme Court, Division No. 1; *Boll v. Condie-Bray Glass & Paint Co.*, 11 S. W. (2d) 48; decided October 4, 1928.) An action for damages was brought by plaintiff employee against his employer, a paint-manufacturing concern. One of the causes of action was based on negligence on the part of the defendant in failing to comply with certain statutory provisions requiring devices for the prevention of occupational diseases among employees. Sections 6817, 6819, 6825, and 6827, Revised Statutes, 1919, were the statutory provisions involved, and these sections the defendant claimed were unconstitutional. The supreme court did not agree with this contention, however, but held the sections in question to be constitutional and a reasonable exercise of the police power of the State. The court, in the course of its opinion, said:

As above stated, these sections of the statute were enacted for the purpose—the very laudable purpose—of preventing diseases among laborers, which diseases are incident to the operation of such business. \* \* \*

Learned counsel insist that sections 6817, 6819, 6825, and 6827, R. S. Mo. 1919, are unconstitutional and that therefore respondent was under no obligation to furnish the means, methods, or devices required by said sections. \* \* \*



In view of the authorities above mentioned and those cited therein, and in view of the benefits to be derived therefrom by all the employees in such manufacturing establishment, we have no hesitation in holding that sections 6817, 6819, 6825, and 6827, R. S. Mo. 1919, are constitutional, and that they are a reasonable exercise of the police power of the State. Health measures and measures for the protection of the lives and limbs of employees have very properly been held to be legislation of the highest type and indicative of the desire of an enlightened people to help those who are in need of such assistance. \* \* \*

Counsel for respondent ingeniously argue that the devices, means, and methods provided for in the statute, supra, are required to be "approved and adequate," but that no provision is made as to who shall approve of them; hence the statute is vague, uncertain, and meaningless. We can not agree with counsel's argument. Even if the word "approved" is objectionable, as counsel earnestly argue, yet in construing a statute a word may be stricken out whenever necessary to give the statute the meaning intended by the lawmakers. \* \* \* By omitting the word "approved" we have the statute requiring that adequate means, methods, and devices shall be provided, which certainly can not be said to be either vague, uncertain, or meaningless. But we hold that the word "approved" was not used in the sense that such device should be approved by one particular person or one particular State official, but that said word was rather used in the sense that the public approved of such means, method, or device, and adopted or recognized it as a suitable means to prevent the injury which the lawmakers hoped to avoid. \* \* \*

Counsel also argue that no definition is given in the statute of what the lawmakers intended should be such a device; but such a definition is unnecessary. In many statutes and ordinances, such words or similar words are used, and our courts have uniformly enforced such enactments. \* \* \*

\* \* \* \* \*

We can not agree with counsel that it was the duty of appellant to offer evidence that such devices, methods, or means were practical, feasible, or possible; nor that respondent had the same at hand or could have the same by reasonable expense.

\* \* \* \* \*

As sections 6817, 6819, 6825, and 6827, R. S. Mo. 1919, are imperative in their requirements, and as no exceptions are therein made, it was unnecessary for appellant to do more than to introduce evidence that respondent had violated these statutes, resulting in the injuries complained of by him.

As appellant (plaintiff) made out a prima facie case under the second count of his petition, he was entitled to have his case passed upon by a jury, who alone is competent to decide as to the credibility of the witnesses and the weight to be given to their testimony.

*Construction of sewer system by city not enjoined.*—(Kentucky Court of Appeals; *Baker v. City of Princeton*, 11 S. W. (2d) 94; decided November 23, 1928.) Chapter 88, Laws of 1928, authorized the construction, maintenance, etc., of sewers in fourth-class cities. After this statute went into effect, the city of Princeton, a fourth-class city, passed an ordinance providing for the construction of a sewerage system.

About 20 years before, the city had constructed a small sewer system in the business section, which system served a few residences, including two belonging to the plaintiff. A fee of \$20 was paid to the city for the privilege of connecting with the system, and there was no further charge.

The plaintiff instituted an action to enjoin the city from proceeding with the letting of contracts and the construction of the sewer system under the above-mentioned law and ordinance. It was insisted that the plaintiff and others who had paid the fee of \$20 had acquired a vested right which the city could not interfere with or take away. The court of appeals did not take this view of the matter, saying that "The mere right to tap a sewer system in consideration of a specified fee is simply a temporary privilege which must yield when it becomes necessary to discontinue the old system, and construct a new system in order to promote the public health."

One of the other points made was that the city council was without power to create a single district but should have created several districts so that the burden would fall more equally on the property owners. Concerning this the court said that "There is nothing in the act that requires a city council to divide the city into separate districts. On the contrary, the whole matter is left to the sound discretion of the board of council [cases cited], and the courts are without authority to interfere, even though they may believe it would be more advisable to adopt a different plan."

The court concluded its opinion by saying that "the city has the power to construct the proposed sewer system in accordance with the terms and conditions contained in the ordinance."

## DEATHS FROM INFLUENZA AND PNEUMONIA IN LARGE CITIES

*Deaths from influenza and pneumonia in 78 large cities during eight weeks ended February 2, 1929.<sup>1</sup> (From the Weekly Health Index, February 6, 1929, issued by the Bureau of the Census, Department of Commerce)*

### INFLUENZA DEATHS

City	Week ended—							
	Dec. 15, 1928	Dec. 22, 1928	Dec. 29, 1928	Jan. 5, 1929	Jan. 12, 1929	Jan. 19, 1929	Jan. 26, 1929	Feb. 2, 1929
Total.....	477	766	1,061	1,424	1,513	1,033	791	2,409
Akron.....	2	18	14	5	6	3	1	1
Albany.....	1	1	3	4	5	11	9	13
Atlanta.....	10	33	51	31	-----	18	12	-----
Baltimore.....	6	8	17	31	46	37	25	19
Birmingham.....	4	-----	11	60	108	-----	34	17
Boston.....	2	2	3	4	19	16	25	16

<sup>1</sup> A table showing the influenza and pneumonia deaths in these cities beginning with the week ended Nov. 3, 1928, was published in Public Health Reports for Jan. 11, 1929, on p. 63.

<sup>2</sup> Incomplete returns.

*Deaths from influenza and pneumonia in 78 large cities during eight weeks ended February 2, 1929—Continued*

INFLUENZA DEATHS—Continued

City	Week ended—							
	Dec. 15, 1928	Dec. 22, 1928	Dec. 29, 1928	Jan. 5, 1929	Jan. 12, 1929	Jan. 19, 1929	Jan. 26, 1929	Feb. 2, 1929
Bridgeport	0	0	0	3	2	15	17	12
Buffalo	6	6	4	10	22	7	6	3
Cambridge	0	0	0	0	0	3	5	4
Camden	4	4	4	10	8	2	2	2
Canton	1	2	27	13	2	2	2	11
Chicago	33	80	104	67	55	39	23	6
Cincinnati	6	5	9	45	40	39	15	16
Cleveland	2	25	54	65	65	46	17	7
Columbus	0	10	22	33	46	25	13	10
Dallas	0	0	18	25	21	18	12	1
Dayton	0	0	2	3	5	8	1	1
Denver	58	50	25	19	15	14	4	5
Des Moines	6	19	13	10	0	0	1	20
Detroit	4	22	64	90	73	32	7	3
Duluth	5	8	2	4	4	0	0	10
El Paso	4	7	10	29	18	13	12	7
Erie	0	0	3	10	23	14	5	1
Fall River	0	0	0	5	8	3	15	3
Flint	0	2	5	19	16	10	3	1
Fort Worth	3	3	4	23	37	23	21	1
Grand Rapids	11	16	18	6	10	2	2	3
Houston	2	5	12	17	13	10	3	1
Indianapolis	6	16	15	18	16	5	6	3
Jersey City	2	3	2	3	7	12	11	13
Kansas City, Kans.	23	23	8	0	2	2	0	2
Kansas City, Mo.	35	20	14	15	18	7	4	2
Knoxville	1	11	14	15	18	11	11	2
Los Angeles	85	45	32	25	17	10	7	2
Louisville	0	1	2	7	8	10	7	0
Lowell	0	1	0	0	0	0	2	6
Lynn	0	1	2	2	2	1	2	5
Memphis	2	3	11	42	49	27	13	4
Milwaukee	3	10	10	23	36	19	13	5
Minneapolis	2	21	24	27	20	8	8	4
Nashville	0	0	8	13	35	23	19	3
New Bedford	0	0	1	1	1	2	5	3
New Haven	2	0	1	1	2	2	5	14
New Orleans	12	37	53	84	53	30	15	124
New York	16	25	46	55	127	154	167	3
Newark, N. J.	1	2	3	12	22	20	16	1
Oakland	1	8	7	5	5	6	7	8
Oklahoma City	0	2	3	11	10	9	7	0
Omaha	0	2	0	7	10	8	6	16
Paterson	0	0	0	56	72	55	55	13
Philadelphia	16	34	47	11	10	8	3	2
Pittsburgh	17	64	144	177	98	51	19	9
Portland, Oreg.	9	9	11	10	8	3	5	9
Providence	0	1	0	2	5	6	15	5
Richmond	3	0	4	17	30	18	6	3
Rochester	0	1	0	3	6	6	6	4
St. Louis	0	1	5	9	10	9	5	0
St. Paul	2	3	13	12	13	6	2	3
Salt Lake City	13	12	3	3	2	2	2	15
San Antonio	6	4	8	11	16	19	21	0
San Diego	16	8	6	3	5	3	2	4
San Francisco	9	10	9	7	5	8	3	5
Schenectady	0	1	0	4	5	8	7	8
Seattle	15	15	17	15	11	10	5	0
Somerville	0	0	0	0	0	0	0	1
Spokane	8	11	9	7	3	3	0	1
Springfield, Mass.	1	1	0	1	1	1	2	1
Syracuse	0	3	6	9	12	3	1	2
Tacoma	1	3	10	4	1	3	3	2
Toledo	21	27	39	16	20	17	10	7
Trenton	0	2	0	6	7	5	8	3
Utica	1	0	0	3	2	11	2	2
Washington, D. C.	7	3	7	10	25	11	18	12
Waterbury	0	0	0	5	0	0	1	1
Wilmington, Del.	0	1	4	4	3	1	1	2
Worcester	0	0	0	0	0	0	0	0
Yonkers	1	0	9	2	2	3	0	0
Youngstown	0	0	15	22	29	12	9	7

*Deaths from influenza and pneumonia in 78 large cities during eight weeks ended  
February 2, 1929—Continued*

## PNEUMONIA DEATHS

City	Week ended—							
	Dec. 15, 1928	Dec. 22, 1928	Dec. 29, 1928	Jan. 5, 1929	Jan. 12, 1929	Jan. 19, 1929	Jan. 26, 1929	Feb. 2, 1929
Total.....	1,226	1,645	1,981	2,469	2,566	2,362	2,079	<sup>1</sup> 1,728
Akron.....	8	65	38	32	31	10	13	13
Albany.....	4	9	11	12	15	16	23	17
Atlanta.....	14	26	28	19	18	15	13	11
Baltimore.....	37	27	51	65	94	87	83	49
Birmingham.....	9	4	7	27	44	26	11	10
Boston.....	24	36	29	39	52	80	96	111
Bridgeport.....	3	2	1	6	12	15	20	12
Buffalo.....	24	33	36	47	65	63	61	52
Cambridge.....	3	2	6	7	7	13	14	21
Camden.....	12	8	4	26	23	8	8	5
Canton.....	6	15	12	19	8	7	4	6
Chicago.....	129	179	226	208	153	125	91	90
Cincinnati.....	11	13	26	63	56	41	39	24
Cleveland.....	19	35	60	106	124	91	36	32
Columbus.....	5	12	26	34	28	17	9	8
Dallas.....	1	4	21	24	27	19	14	11
Dayton.....	3	9	13	13	18	12	6	2
Denver.....	51	28	22	16	14	15	11	12
Des Moines.....	2	25	6	8	7	10	9	8
Detroit.....	35	57	112	160	134	75	45	50
Duluth.....	1	2	0	1	3	2	3	0
El Paso.....	6	11	6	6	7	6	4	-----
Erie.....	3	0	5	3	11	4	2	-----
Fall River.....	1	5	7	3	8	13	12	13
Flint.....	2	4	12	17	26	16	3	-----
Fort Worth.....	3	7	11	12	13	6	-----	-----
Grand Rapids.....	5	8	8	3	5	3	0	5
Houston.....	12	17	20	46	31	20	16	9
Indianapolis.....	33	43	48	44	27	18	22	16
Jersey City.....	12	18	17	23	28	40	34	26
Kansas City, Kans.....	31	12	6	12	7	8	4	5
Kansas City, Mo.....	29	52	12	23	19	19	11	21
Knoxville.....	1	18	9	18	26	24	12	0
Los Angeles.....	44	36	33	28	26	20	26	-----
Louisville.....	10	9	13	31	39	59	47	28
Lowell.....	4	4	2	5	4	12	14	12
Lynn.....	3	2	6	1	3	7	7	14
Memphis.....	5	10	12	25	17	10	-----	-----
Milwaukee.....	4	22	36	40	43	28	23	19
Minneapolis.....	8	14	23	21	33	17	15	9
Nashville.....	3	8	4	3	9	12	11	7
New Bedford.....	3	1	3	6	11	15	27	13
New Haven.....	6	6	4	7	9	11	14	9
New Orleans.....	16	22	44	62	31	18	17	17
New York.....	202	212	223	302	437	565	617	492
Newark, N. J.....	10	12	19	32	56	38	40	36
Oakland.....	8	5	6	11	7	7	2	8
Oklahoma City.....	8	7	9	18	37	25	10	10
Omaha.....	34	38	41	19	6	15	10	11
Paterson.....	3	4	2	12	16	15	13	14
Philadelphia.....	83	132	134	207	180	157	123	94
Pittsburgh.....	40	95	149	154	93	62	40	38
Portland, Oreg.....	11	10	18	20	15	8	7	10
Providence.....	6	7	8	9	10	24	22	28
Richmond.....	4	4	14	14	12	8	7	7
Rochester.....	7	5	8	8	7	8	26	24
St. Louis.....	35	33	66	72	76	61	47	46
St. Paul.....	10	20	20	25	16	11	9	7
Salt Lake City.....	7	4	1	1	4	2	2	4
San Antonio.....	10	8	12	12	10	17	7	-----
San Diego.....	8	4	3	6	8	4	5	1
San Francisco.....	18	14	17	19	11	20	14	8
Schenectady.....	2	2	2	3	8	9	10	-----
Seattle.....	9	13	21	13	13	9	6	10
Somerville.....	3	1	5	7	2	7	10	10
Spokane.....	12	9	6	4	5	4	1	-----
Springfield, Mass.....	3	4	9	10	17	8	13	14
Syracuse.....	4	3	10	17	24	16	10	7
Tacoma.....	6	3	2	4	5	1	4	-----
Toledo.....	7	17	27	18	14	5	5	9

<sup>1</sup> Incomplete returns.

*Deaths from influenza and pneumonia in 78 large cities during eight weeks ended February 2, 1929—Continued*

PNEUMONIA DEATHS—Continued

City	Week ended—							
	Dec. 15, 1928	Dec. 22, 1928	Dec. 29, 1928	Jan. 5, 1929	Jan. 12, 1929	Jan. 19, 1929	Jan. 26, 1929	Feb. 2, 1929
Trenton.....	4	7	8	14	23	8	10	7
Utica.....	3	8	11	11	15	15	12	.....
Washington, D. C.....	10	19	19	20	37	53	36	36
Waterbury.....	1	2	2	0	2	0	3	5
Wilmington, Del.....	3	4	5	11	9	15	11	10
Worcester.....	0	0	2	5	6	8	2	.....
Yonkers.....	4	2	7	11	9	15	11	9
Youngstown.....	6	17	19	9	10	12	4	6

Blank spaces indicate that no report has been received.

**DEATHS DURING WEEK ENDED FEBRUARY 2, 1929**

*Summary of information received by telegraph from industrial insurance companies for the week ended February 2, 1929, and corresponding week of 1928. (From the Weekly Health Index, February 6, 1929, issued by the Bureau of the Census, Department of Commerce)*

	Week ended Feb. 2, 1929	Corresponding week, 1928
Policies in force.....	72, 787, 325	70, 192, 320
Number of death claims.....	20, 119	13, 911
Death claims per 1,000 policies in force, annual rate.....	14.4	10.4

*Deaths from all causes in certain large cities of the United States during the week ended February 2, 1929, infant mortality, annual death rate, and comparison with corresponding week of 1928. (From the Weekly Health Index, February 6, 1929, issued by the Bureau of the Census, Department of Commerce)*

City	Week ended Feb. 2, 1929		Annual death rate per 1,000, corre- sponding week, 1928	Deaths under 1 year		Infant mortality rate, week ended Feb. 2, 1929 <sup>1</sup>
	Total deaths	Death rate <sup>1</sup>		Week ended Feb. 2, 1929	Corre- sponding week, 1928	
Total (66 cities).....	9,589	16.7	13.4	877	735	*74
Akron.....	57	.....	.....	7	6	72
Albany <sup>4</sup> .....	63	27.4	13.5	4	3	79
Atlanta.....	101	20.7	17.0	12	7	125
White.....	44	.....	.....	7	6	.....
Colored.....	57	(9)	(9)	5	1	.....
Baltimore <sup>4</sup> .....	267	16.8	14.8	26	17	83
White.....	206	.....	.....	21	15	84
Colored.....	61	(9)	(9)	5	2	79
Birmingham.....	75	17.6	17.2	6	7	54
White.....	36	.....	.....	3	3	45
Colored.....	39	(9)	(9)	3	4	69
Boston.....	410	26.8	14.2	31	24	86
Bridgeport.....	54	.....	.....	4	4	69
Buffalo.....	195	18.3	13.7	22	13	95
Cambridge.....	60	24.9	15.4	4	4	72
Camden.....	38	14.7	14.3	8	3	138
Canton.....	28	12.5	10.7	4	1	95
Chicago <sup>4</sup> .....	761	12.6	14.3	74	70	66

Footnotes at end of table.



*Deaths from all causes in certain large cities of the United States during the week ended February 2, 1929, infant mortality, annual death rate, and comparison with corresponding week of 1928—Continued*

City	Week, ended Feb. 2, 1929		Annual death rate per 1,000, corresponding week, 1928	Deaths under 1 year		Infant mortality rate, week ended Feb. 2, 1929
	Total deaths	Death rate		Week ended Feb. 2, 1929	Corresponding week, 1928	
Cincinnati	165			10	13	58
Cleveland	229	11.9	9.3	25	21	74
Columbus	108	18.9	15.2	13	6	122
Dallas	67	16.1	11.0	8	2	
White	56			6	1	
Colored	11	( <sup>9</sup> )	( <sup>9</sup> )	2	1	
Dayton	52	14.7	11.3	3	2	48
Denver	115	20.4	18.3	16	15	154
Des Moines	41	14.1	10.7	2	2	36
Detroit	352	13.3	10.5	48	48	77
Duluth	32	14.3	9.8	3	1	72
El Paso	65	28.9	17.8	13	5	
Erie	32			3	1	61
Fall River	64	24.9	8.2	2	6	38
Flint	23	8.1	7.4	3	3	36
Fort Worth	42	12.9	12.3	10	0	
White	37			9	0	
Colored	5	( <sup>9</sup> )	( <sup>9</sup> )	1	0	
Grand rapids	40	12.7	8.6	6	2	91
Houston	71			9	8	
White	55			7	6	
Colored	16	( <sup>9</sup> )	( <sup>9</sup> )	2	2	
Indianapolis	132	18.1	13.7	4	14	32
White	112			3	10	28
Colored	20	( <sup>9</sup> )	( <sup>9</sup> )	1	4	60
Jersey City	112	18.0	13.7	14	14	108
Kansas City, Kans.	38	16.8	14.1	2	2	44
White	29			2	2	50
Colored	9	( <sup>9</sup> )	( <sup>9</sup> )	0	0	0
Kansas City, Mo.	136	18.2	15.1	7	9	59
Knoxville	12	6.0	15.4	2	3	44
White	11			2	3	49
Colored	1	( <sup>9</sup> )	( <sup>9</sup> )	0	0	0
Los Angeles	279			24	11	70
Louisville	101	16.0	7.6	11	6	89
White	76			9	5	84
Colored	25	( <sup>9</sup> )	( <sup>9</sup> )	2	1	126
Lowell	41			1	1	23
Lynn	39	19.3	14.9	1	2	27
Memphis	78	21.4	18.7	8	4	94
White	43			5	2	95
Colored	35	( <sup>9</sup> )	( <sup>9</sup> )	3	2	94
Milwaukee	155	14.9	11.6	21	12	92
Minneapolis	97	11.1	12.4	4	5	25
Nashville	52	19.5	17.6	3	1	48
White	31			3	0	65
Colored	21	( <sup>9</sup> )	( <sup>9</sup> )	0	1	0
New Bedford	41			6	9	129
New Haven	67	18.6	10.0	5	1	77
New Orleans	162	19.7	17.4	13	18	65
White	93			6	9	42
Colored	69	( <sup>9</sup> )	( <sup>9</sup> )	7	9	118
New York	2,189	19.0	14.0	182	177	75
Bronx Borough	281	15.4	10.7	17	12	50
Brooklyn Borough	814	18.4	12.1	67	75	68
Manhattan Borough	826	24.7	19.4	77	60	94
Queens Borough	194	11.9	10.4	16	18	65
Richmond Borough	74	25.7	20.1	5	3	91
Newark, N. J.	132	14.6	11.8	15	15	79
Oakland	67	12.8	12.2	1	4	11
Oklahoma City	26			1	0	20
Omaha	66	15.5	17.1	6	4	70
Paterson	53	19.1	15.5	4	5	71
Philadelphia	613	15.5	13.0	64	48	91
Pittsburgh	213	16.5	12.7	20	22	69
Portland, Oreg.	85			4	7	46
Providence	116	21.2	11.9	8	6	70
Richmond	78	21.0	12.1	10	5	140
White	45			4	3	85
Colored	33	( <sup>9</sup> )	( <sup>9</sup> )	6	2	246
Rochester	122	19.4	14.3	10	8	85

Footnotes at end of table.

*Deaths from all causes in certain large cities of the United States during the week ended February 2, 1929, infant mortality, annual death rate, and comparison with corresponding week of 1928—Continued*

City	Week ended Feb. 2, 1929		Annual death rate per 1,000, corresponding week, 1928	Deaths under 1 year		Infant mortality rate, week ended Feb. 2, 1929
	Total deaths	Death rate		Week ended Feb. 2, 1929	Corresponding week, 1928	
St. Louis.....	305	18.8	16.0	22	14	74
St. Paul.....	46			3	2	31
Salt Lake City.....	43	16.3	10.6	8	2	123
San Antonio.....	89	21.3	12.7	9	8	
San Diego.....	46	20.1	21.4	5	3	
San Francisco.....	183	16.3	16.0	5	8	32
Schenectady.....	32	17.9	13.4	2	2	64
Seattle.....	89	12.1	10.6	4	4	42
Somerville.....	35	17.8	11.2	1	1	36
Spokane.....	40	19.2	12.5	3	1	78
Springfield, Mass.....	56	19.5	14.7	10	5	165
Syracuse.....	49	12.9	15.5	2	3	24
Tacoma.....	33	15.6	12.3	1	2	26
Toledo.....	86	14.4	12.1	9	5	84
Trenton.....	32	19.6	11.7	5	2	91
Utica.....	29	14.6	16.1	1	4	25
Washington, D. C.....	204	19.3	14.2	20	9	117
White.....	137			11	5	93
Colored.....	67	( <sup>1</sup> )	( <sup>1</sup> )	9	4	170
Waterbury.....	26			2	2	51
Wilmington, Del.....	33	13.4	11.0	3	0	78
Worcester.....	46	12.2	12.4	1	4	13
Yonkers.....	36	15.5	10.3	3	3	70
Youngstown.....	45	13.5	10.2	5	4	72

<sup>1</sup> Annual rate per 1,000 population.

<sup>2</sup> Deaths under 1 year per 1,000 births. Cities left blank are not in the registration area for births.

<sup>3</sup> Data for 73 cities.

<sup>4</sup> Deaths for week ended Friday.

<sup>5</sup> In the cities for which deaths are shown by color the colored population in 1929 constituted the following percentages of the total population: Atlanta, 31; Baltimore, 15; Birmingham, 39; Dallas, 15; Fort Worth, 14; Houston, 25; Indianapolis, 11; Kansas City, Kans., 14; Knoxville, 15; Louisville, 17; Memphis, 38; Nashville, 30; New Orleans, 26; Richmond, 32; and Washington, D. C., 25.

# PREVALENCE OF DISEASE

*No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring*

## UNITED STATES

### CURRENT WEEKLY STATE REPORTS

These reports are preliminary and the figures are subject to change when later returns are received by the State health officers

**Reports for Weeks Ended February 2, 1929, and February 4, 1928**

*Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended February 2, 1929, and February 4, 1928*

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Feb. 2, 1929	Week ended Feb. 4, 1928	Week ended Feb. 2, 1929	Week ended Feb. 4, 1928	Week ended Feb. 2, 1929	Week ended Feb. 4, 1928	Week ended Feb. 2, 1929	Week ended Feb. 4, 1928
<b>New England States:</b>								
Maine.....	1	5	943	12	177	63	0	0
New Hampshire.....		1	265		20	16	0	0
Vermont.....	3		318		25	24	0	0
Massachusetts.....	84	118	1,149	15	393	1,486	4	3
Rhode Island.....	2	13	205		61	7	0	1
Connecticut.....	28	42	684	11	253	265	3	1
<b>Middle Atlantic States:</b>								
New York.....	239	482	1,778	147	737	1,234	43	15
New Jersey.....	113	152	361	19	144	367	8	4
Pennsylvania.....	221	356			1,621	1,487	15	5
<b>East North Central States:</b>								
Ohio.....	106	78	621	15	765	405	20	1
Indiana.....	23	33	219	57	225	80	0	0
Illinois.....	145	160	430	36	438	84	9	12
Michigan.....	92	66	110	4	151	459	17	5
Wisconsin.....	16	31	354	64	392	85	5	5
<b>West North Central States:</b>								
Minnesota.....	16	20	30	3	242	8	5	1
Iowa.....	7	30			16	75	1	1
Missouri.....	39	56	433	6	227	80	4	0
North Dakota.....	11	15	122		37	6	6	1
South Dakota.....	3	3		2	53	27	0	0
Nebraska.....	13	19	92		46	3	1	0
Kansas.....	20	22	86	6	47	28	7	3
<b>South Atlantic States:</b>								
Delaware.....		4			19	13	0	0
Maryland.....	27	43	2,924	53	56	504	4	1
District of Columbia.....	9	33	87		3	22	0	0
West Virginia.....	12	21	1,994	27	77	125	3	1
North Carolina.....	42	51			22	3,668	1	1
South Carolina.....	21	25	2,148	1,397	6	1,304	0	0
Georgia.....	10	17	1,133	218	29	314	5	0
Florida.....	6	22	345	6	5	7	2	0

<sup>1</sup> New York City only.

<sup>2</sup> Week ended Friday.

*Cases of certain communicable diseases reported by telegraph by State health officers  
for weeks ended February 2, 1929, and February 4, 1928—Continued*

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Feb. 2, 1929	Week ended Feb. 4, 1928	Week ended Feb. 2, 1929	Week ended Feb. 4, 1928	Week ended Feb. 2, 1929	Week ended Feb. 4, 1928	Week ended Feb. 2, 1929	Week ended Feb. 4, 1928
<b>East South Central States:</b>								
Kentucky.....		12	402		32	205	0	0
Tennessee.....	9	24	1,559	110	26	526	0	0
Alabama.....	21	21	1,896	235	110	212	7	0
Mississippi.....	17	11	402				1	
<b>West South Central States:</b>								
Arkansas.....	4	7	1,013	170	18	384	1	2
Louisiana.....	17	14	1,150	37	38	212	4	0
Oklahoma <sup>2</sup> .....	43	42	1,602	255	8	108	23	1
Texas.....	54	95	912	453	72	89	7	1
<b>Mountain States:</b>								
Montana.....	1	20	32		113		4	6
Idaho.....	4				2	1	2	3
Wyoming.....	1	1	2		5	2	0	2
Colorado.....	12	14	18		10	52	16	10
New Mexico.....	1	5	5		5	187	0	0
Arizona.....	8	8	8			2	9	7
Utah <sup>1</sup> .....	5	4	5	7	2	2	7	1
<b>Pacific States:</b>								
Washington.....	3	31	3		47	292	3	1
Oregon.....	20	8	106	37	103	43	2	2
California.....	63	138	179	57	87	127	17	5
Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Feb. 2, 1929	Week ended Feb. 4, 1928	Week ended Feb. 2, 1929	Week ended Feb. 4, 1928	Week ended Feb. 2, 1929	Week ended Feb. 4, 1928	Week ended Feb. 2, 1929	Week ended Feb. 4, 1928
<b>New England States:</b>								
Maine.....	0	3	25	45	4	0	2	0
New Hampshire.....	0	0	18	13	0	0	0	0
Vermont.....	0	0	4	8	1	0	0	0
Massachusetts.....	0	1	266	324	1	0	1	7
Rhode Island.....	0	0	26	40	0	0	0	0
Connecticut.....	0	2	37	85	0	6	0	0
<b>Middle Atlantic States:</b>								
New York.....	2	8	450	724	1	11	15	14
New Jersey.....	0	1	150	270	1	0	3	6
Pennsylvania.....	1	0	545	731	0	0	7	33
<b>East North Central States:</b>								
Ohio.....	1	2	306	392	50	42	5	15
Indiana.....	0	0	195	139	42	140	3	3
Illinois.....	1	3	387	362	131	30	9	16
Michigan.....	1	2	296	283	37	39	1	25
Wisconsin.....	0	1	185	217	13	35	4	6
<b>West North Central States:</b>								
Minnesota.....	1	0	143	163	3	5	4	1
Iowa.....	1	1	182	114	31	74	0	2
Missouri.....	0	0	75	116	64	37	4	2
North Dakota.....	0	0	39	89	2	0	0	2
South Dakota.....	0	1	49	85	80	44	1	0
Nebraska.....	0	2	127	91	70	40	1	2
Kansas.....	0	0	122	179	43	119	4	0
<b>South Atlantic States:</b>								
Delaware.....	1	0	3	2	0	0	0	0
Maryland.....	0	2	81	55	2	0	0	0
District of Columbia.....	0	0	21	36	0	0	0	0
West Virginia.....	0	1	37	59	4	13	1	3
North Carolina.....	0	0	64	48	14	129	2	4
South Carolina.....	0	3	15	10	17	4	6	9
Georgia.....	0	0	18	35	0	0	3	7
Florida.....	0	0	9	18	1	3	1	5
<b>East South Central States:</b>								
Kentucky.....	0	0	85	57	16	52	3	6
Tennessee.....	0	0	35	29	2	24	7	4
Alabama.....	0	0	25	16	3	1	2	4
Mississippi.....	1	0	10	13	1	7	2	2

<sup>1</sup> Week ended Friday.

<sup>2</sup> Figures for 1929 are exclusive of Oklahoma City and Tulsa, and for 1928 are exclusive of Tulsa.



Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended February 2, 1929, and February 4, 1928—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Feb. 2, 1929	Week ended Feb. 4, 1928	Week ended Feb. 2, 1929	Week ended Feb. 4, 1928	Week ended Feb. 2, 1929	Week ended Feb. 4, 1928	Week ended Feb. 2, 1929	Week ended Feb. 4, 1928
<b>West South Central States:</b>								
Arkansas.....	0	0	12	76	2	6	0	12
Louisiana.....	2	0	27	16	4	14	9	11
Oklahoma <sup>1</sup> .....	2	0	40	57	38	233	3	7
Texas.....	0	3	72	141	103	96	2	9
<b>Mountain States:</b>								
Montana.....	0	0	37	0	29	44	1	1
Idaho.....	0	0	2	4	56	6	4	2
Wyoming.....	0	0	15	15	0	6	0	0
Colorado.....	0	0	35	105	54	24	1	2
New Mexico.....	0	2	16	35	0	0	5	2
Arizona.....	0	1	11	2	1	3	0	0
Utah <sup>2</sup> .....	0	0	10	6	9	18	0	0
<b>Pacific States:</b>								
Washington.....	0	2	26	74	28	40	1	2
Oregon.....	0	3	26	22	36	48	0	6
California.....	1	17	355	218	63	39	7	13

<sup>2</sup> Week ended Friday.

<sup>1</sup> Figures for 1929 are exclusive of Oklahoma City and Tulsa, and for 1928 are exclusive of Tulsa.

<sup>4</sup> Delayed report.

### SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of monthly State reports is published weekly and covers only those States from which reports are received during the current week:

State	Menin- gococ- cus menin- gitis	Diph- theria	Influenza	Ma- laria	Meas- les	Pel- lagra	Pollo- mye- litis	Scarlet fever	Small- pox	Ty- phoid fever
<b>December, 1928</b>										
District of Colum- bia.....	2	76	577		3		0	57	0	3
Delaware.....		3	30		46		0	21	0	0
Montana.....	29	20	16,750		276		0	140	56	4
Pennsylvania.....	23	1,045			4,795	1	9	1,908	0	73
Virginia.....	5	200	60,962	54	323	10	5	368	4	23

December, 1928				Ophthalmia neonatorum:		Cases
<b>Chicken pox:</b>		<b>Cases</b>		Pennsylvania.....		6
District of Columbia.....		117		Puerperal septicemia:		
Delaware.....		9		Pennsylvania.....		9
Montana.....		196		Septic sore throat:		
Pennsylvania.....		4,474		Montana.....		1
Virginia.....		605		Tetanus:		
<b>Dysentery:</b>				Pennsylvania.....		5
Virginia.....		25		Trachoma:		
<b>German measles:</b>				Delaware.....		1
Montana.....		8		Pennsylvania.....		2
Pennsylvania.....		51		Tularaemia:		
<b>Hookworm disease:</b>				Montana.....		2
Virginia.....		4		Virginia.....		6
<b>Lethargic encephalitis:</b>				Whooping cough:		
Pennsylvania.....		3		District of Columbia.....		55
<b>Mumps:</b>				Delaware.....		25
Delaware.....		2		Montana.....		67
Montana.....		26		Pennsylvania.....		2,141
Pennsylvania.....		1,835		Virginia.....		582



# RECIPROCAL NOTIFICATIONS

*Notifications regarding communicable diseases sent during the month of December, 1928, by departments of health of certain States to other State health departments*

Disease	Connecticut	Illinois	Kansas	Minnesota	New York	Ohio
Diphtheria					1	
Gonorrhea			1			
Influenza		1				
Measles					1	
Meningococcus meningitis					1	
Pneumonia		1				
Scarlet fever	2	1				
Smallpox		6				
Syphilis			26			3
Tuberculosis		1		35		
Typhoid fever		2		2	2	
Whooping cough		1				

## PLAGUE RAT, MONTEREY COUNTY, CALIF.

The Director of Public Health of California reports that plague infection has been proved in a rat which was found dead on old dumps along the Monterey County Road 1 mile north of the Del Monte summer training camp of the Reserve Officers' Training Corps and 1 mile northeast of Del Monte Hotel.

The rat was received at the State Bacteriological Laboratory January 18, 1929, and positive findings were reported January 26.

## GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 97 cities reporting cases used in the following table are situated in all parts of the country and have an estimated aggregate population of more than 31,430,000. The estimated population of the 89 cities reporting deaths is more than 29,680,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

*Weeks ended January 26, 1929, and January 28, 1928*

	1929	1928	Estimated expectancy
<i>Cases reported</i>			
Diphtheria:			
46 States	1,618	2,426	
97 cities	755	1,146	1,122
Measles:			
45 States	6,340	12,920	
97 cities	1,578	3,390	
Poliomyelitis:			
46 States	24	51	
Scarlet fever:			
46 States	4,207	5,213	
97 cities	1,393	1,681	1,581
Smallpox:			
46 States	787	1,242	
97 cities	47	137	62
Typhoid fever:			
46 States	163	265	
97 cities	27	50	40
<i>Deaths reported</i>			
Influenza and pneumonia:			
89 cities	2,622	1,600	
Smallpox:			
89 cities	0	0	

## City reports for week ended January 26, 1929

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence the number of cases of the disease under consideration that may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding weeks of the preceding years. When the reports include several epidemics, or when for other reasons the median is unsatisfactory, the epidemic periods are excluded and the estimated expectancy is the mean number of cases reported for the week during non-epidemic years.

If the reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1920 is included. In obtaining the estimated expectancy the figures are smoothed when necessary to avoid abrupt deviation from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Population, July 1, 1926, estimated	Chick- en pox, cases re- ported	Diphtheria		Influenza		Meas- les, cases re- ported	Mumps, cases re- ported	Pneu- monia, deaths re- ported
			Cases, es- ti- mated ex- pec- tancy	Cases re- ported	Cases re- ported	Deaths re- ported			
NEW ENGLAND									
Maine:									
Portland	76,400	9	1	0	13	3	31	0	14
New Hampshire:									
Concord	122,546	0	0	0		2	0	0	7
Manchester	84,000	0	1	0		7	0	0	4
Nashua	29,723	0	0	0		0	0	0	2
Vermont:									
Barre	10,008	1	0	0		0	0	3	1
Massachusetts:									
Boston	787,000	59	40	45	360	25	24	28	90
Fall River	131,000	6	5	5	63	16	25	1	12
Springfield	145,000	5	4	12	8	0	140	0	6
Worcester	193,000	26	5	5	8	0	15	4	2
Rhode Island:									
Pawtucket	71,000	2	2	1		0	22	0	14
Providence	275,000	0	11	13	278	15	21	2	22
Connecticut:									
Bridgeport	(7)	2	8	6	1,434	18	8	0	17
Hartford	164,000	0	9	2	115		6	2	
New Haven	182,000	22	2	0	69	5	5	1	14
MIDDLE ATLANTIC									
New York:									
Buffalo	544,000	24	18	11	25	6	8	6	57
New York	5,924,000	277	232	178	1,929	167	48	77	617
Rochester	321,000	10	14	4	107	6	18	23	25
Syracuse	185,000	18	5	1		1	0	1	10
New Jersey:									
Camden	131,000	5	9	3	5	2	1	0	8
Newark	459,000	52	21	40	159	12	4	51	43
Trenton	134,000	3	5	2	3	6	1	0	10
Pennsylvania:									
Philadelphia	2,008,000	140	82	28	70	55	19	6	123
Pittsburgh	637,000	37	25	15		19	10	4	40
Reading	114,000	7	4	0		4	69	0	9
EAST NORTH CENTRAL									
Ohio:									
Cincinnati	411,000	8	12	11	15	15	0	3	39
Cleveland	960,000	68	41	15	73	17	155	5	36
Columbus	285,000	5	6	1	105	13	4	0	9
Toledo	295,000	28	9	5	12	10	2	7	5
Indiana:									
Fort Wayne	90,900	1	4	5		0	0	0	2
Indianapolis	367,000	41	9	3		6	17	0	23
South Bend	81,700	2	1	1		0	9	0	4
Terre Haute	71,900	5	2	1		2	2	0	2
Illinois:									
Chicago	3,048,000	80	91	91	51	23	126	9	91
Springfield	64,700	11	1	1	11	7	0	0	6

<sup>1</sup> Estimated, July 1, 1925.

<sup>2</sup> No estimate made.

## City reports for week ended January 26, 1929—Continued

Division, State, and city	Population, July 1, 1926, estimated	Chick-en pox, cases re-ported	Diphtheria		Influenza		Meas-sles, cases re-ported	Mumps, cases re-ported	Pneu-monia, deaths re-ported
			Cases, esti-mated expect-ancy	Cases re-ported	Cases re-ported	Deaths re-ported			
EAST NORTH CENTRAL—continued									
Michigan:									
Detroit.....	<sup>1</sup> 1,242,044	66	63	56	203	7	14	22	45
Flint.....	136,000	14	6	1	5	3	2	0	3
Grand Rapids.....	156,000	7	3	0		2	9	2	0
Wisconsin:									
Kenosha.....	52,700	2	2	0	1	1	3	0	2
Milwaukee.....	517,000	58	23	4	15	13	127	9	23
Racine.....	69,400	12	2	0	3	0	129	0	3
Superior.....	<sup>1</sup> 39,671	1	0	1	0	1	0	0	0
WEST NORTH CENTRAL									
Minnesota:									
Duluth.....	113,000	3	2	0	0	0	0	0	3
Minneapolis.....	434,000	146	22	16	56	8	86	38	15
St. Paul.....	248,000	29	12	1		4	22	9	8
Iowa:									
Davenport.....	<sup>1</sup> 52,469	4	1	0			0	0	
Des Moines.....	146,000	0	3	2			0	0	
Sioux City.....	78,000	6	1	1			2	1	
Waterloo.....	36,900	1	1	1			0	29	
Missouri:									
Kansas City.....	375,000	15	8	5		4	169	3	11
St. Joseph.....	78,400	5	2	0		1	1	0	6
St. Louis.....	830,000	33	53	32	33	6	13	10	
North Dakota:									
Fargo.....	<sup>1</sup> 26,403	2	1	0		1	0	0	1
Grand Forks.....	<sup>1</sup> 14,811	0	0	0			0	1	
South Dakota:									
Aberdeen.....	<sup>1</sup> 15,036	3	0	0			6	0	
Sioux Falls.....	<sup>1</sup> 30,127	0	0	0			270	0	
Nebraska:									
Lincoln.....	62,000	3	2	0			1	0	
Omaha.....	216,000	1	4	3		0	0	0	10
Kansas:									
Topeka.....	56,500	17	3	0	7	5	32	1	4
Wichita.....	92,500	13	4	1		0	1	0	5
SOUTH ATLANTIC									
Delaware:									
Wilmington.....	124,000		3						
Maryland:									
Baltimore.....	808,000	100	38	12	859	25	1	68	83
Cumberland.....	<sup>1</sup> 33,741	0	0	0	43	1	7	0	6
Frederick.....	<sup>1</sup> 12,035	1	0	0	1	1	0	0	0
District of Columbia:									
Washington.....	528,000	29	23	14	171	18	2	0	36
Virginia:									
Lynchburg.....	<sup>1</sup> 38,493	4	2	0		0	0	14	5
Norfolk.....	174,000	6	2	1	88	5	1	14	18
Richmond.....	189,000	0	6	3	38	7	0	0	5
Roanoke.....	61,900	1	2	0		6	0	0	1
West Virginia:									
Charleston.....	50,700	5	2	0	5	3	7	0	0
Wheeling.....	<sup>1</sup> 50,308	1	2	0	62	3	19	4	14
North Carolina:									
Raleigh.....	<sup>1</sup> 30,371	1	1	1		1	0	0	5
Wilmington.....	37,700	3	0	0		3	0	0	3
Winston-Salem.....	71,800	11	0	0		0	0	1	6
South Carolina:									
Charleston.....	74,100	2	1	4	64	2	0	0	4
Columbia.....	41,800	8	1	0		1	0	1	4
Georgia:									
Atlanta.....	(7)	2	3	4	101	12	0	0	13
Brunswick.....	<sup>1</sup> 16,809	0	0	0		0	0	1	0
Savannah.....	94,900	0	1	0	44	9	0	0	7
Florida:									
Miami.....	<sup>1</sup> 131,286	2	3	1	21	1	2	0	4
St. Petersburg.....	<sup>1</sup> 47,629								
Tampa.....	102,000	5	2	1	4	4	0	0	4

<sup>1</sup> Estimated, July 1, 1925.<sup>2</sup> No estimate made.<sup>3</sup> Special census.

## City reports for week ended January 26, 1929—Continued

Division, State, and city	Population, July 1, 1926, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
EAST SOUTH CENTRAL									
Kentucky:									
Covington.....	58,500	1	1	1	7	2	0	0	7
Louisville.....	311,000	0	5	1	195	10			59
Tennessee:									
Memphis.....	177,000	11	5	10	464	24	0	0	18
Nashville.....	137,000	2	1	1		19	0	0	11
Alabama:									
Birmingham.....	211,000	8	3	4	286	34	1	5	11
Mobile.....	66,800	2	0	1	37	4	2	4	1
Montgomery.....	47,000	0	1	3	190		1	0	
WEST SOUTH CENTRAL									
Arkansas:									
Fort Smith.....	131,643	9	1	1			1	1	
Little Rock.....	75,900	1	1	0	29	2	5	2	9
Louisiana:									
New Orleans.....	419,000	2	13	9	20	15	0	0	17
Shreveport.....	59,500	3	1	0	5	0	0	0	7
Oklahoma:									
Oklahoma City.....	(?)	0	1	2	21	7	25	0	10
Tulsa.....	133,000	15	2	1			1	1	
Texas:									
Dallas.....	203,000	6	8	6		12	0	0	14
Fort Worth.....	159,000	5	3	12		21	3	0	4
Galveston.....	49,100	0	1	1		0	0	0	6
Houston.....	164,954	1	6	9		1	1	1	16
San Antonio.....	205,000	4	2	4		21	2	0	7
MOUNTAIN									
Montana:									
Billings.....	117,971	1	1	0		0	0	0	0
Great Falls.....	129,883	7	1	0		1	65	4	0
Helena.....	112,037	0	0	0	1	0	25	0	0
Missoula.....	112,668	0	0	0		0	8	0	1
Idaho:									
Boise.....	123,042	1	0	0		0	0	0	0
Colorado:									
Denver.....	285,000	22	12	5	7	4	0	14	11
Pueblo.....	43,900	10	2	0		1	0	1	2
New Mexico:									
Albuquerque.....	121,000	0	0	0	3	2	0	1	2
Utah:									
Salt Lake City.....	133,000	46	3	1		2	2	48	2
Nevada:									
Reno.....	112,665	0	0	0		0	0	0	2
PACIFIC									
Washington:									
Seattle.....	(?)	26	5	8	1		1	12	
Spokane.....	109,000	11	4	4			21	0	
Tacoma.....	106,000	5	3	0		3	1	20	4
Oregon:									
Portland.....	1282,383	15	10	8	15	5	37	6	7
Salem.....	119,709	2	0	0	9		0	0	
California:									
Los Angeles.....	(?)	35	48	16	90	8	3	15	26
Sacramento.....	73,400	6	3	0	21	1	1	15	3
San Francisco.....	567,000	20	22	10	14	2	4	4	0

<sup>1</sup> Estimated, July 1, 1925.<sup>2</sup> No estimate made.



## City reports for week ended January 26, 1929—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culosis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
NEW ENGLAND											
Maine:											
Portland.....	3	4	0	0	0	0	0	0	0	1	35
New Hampshire:											
Concord.....	0	0	0	0	0	1	0	0	0	0	26
Manchester.....	2	3	0	0	0	2	0	0	0	0	26
Nashua.....	1	0	0	0	0	0	0	0	0	0	9
Vermont:											
Barre.....	1	0	0	0	0	1	0	0	0	0	8
Massachusetts:											
Boston.....	87	77	0	0	0	18	1	0	0	31	394
Fall River.....	3	3	0	0	0	4	1	0	0	7	71
Springfield.....	10	3	0	0	0	2	0	0	0	2	60
Worcester.....	12	14	0	0	0	1	0	1	0	4	47
Rhode Island:											
Pawtucket.....	1	2	0	0	0	0	1	0	0	2	33
Providence.....	11	26	0	0	0	4	0	0	0	5	123
Connecticut:											
Bridgeport.....	12	3	0	0	0	1	0	0	0	3	74
Hartford.....	7	7	0	0	0	0	0	0	0	7	64
New Haven.....	11	2	0	0	0	1	0	0	0	0	54
MIDDLE ATLANTIC											
New York:											
Buffalo.....	28	37	0	0	0	11	0	0	0	47	219
New York.....	305	243	0	0	0	124	9	4	2	60	2,373
Rochester.....	13	5	0	0	0	5	0	0	0	25	127
Syracuse.....	16	11	0	0	0	3	1	0	0	25	68
New Jersey:											
Camden.....	7	14	0	0	0	3	0	0	0	4	39
Newark.....	33	15	0	0	0	13	0	0	0	16	163
Trenton.....	6	2	0	0	0	1	0	0	0	1	59
Pennsylvania:											
Philadelphia.....	107	91	0	0	0	37	2	1	0	92	650
Pittsburgh.....	44	26	0	0	0	11	1	0	0	12	252
Reading.....	3	5	0	0	0	0	1	0	0	0	40
EAST NORTH CEN- TRAL											
Ohio:											
Cincinnati.....	21	22	1	2	0	9	0	1	1	16	213
Cleveland.....	48	35	0	0	0	11	1	0	0	53	243
Columbus.....	14	4	1	0	0	6	1	0	0	11	98
Toledo.....	16	22	1	0	0	7	0	0	0	88	89
Indiana:											
Fort Wayne.....	7	9	0	2	0	0	0	0	0	0	19
Indianapolis.....	13	31	13	1	0	4	0	0	0	11	110
South Bend.....	3	2	0	2	0	4	0	0	0	2	16
Terre Haute.....	4	1	1	0	0	0	0	0	0	1	22
Illinois:											
Chicago.....	147	102	2	2	0	46	3	5	0	41	795
Springfield.....	3	17	0	0	0	0	0	1	0	6	41
Michigan:											
Detroit.....	104	134	4	2	0	26	1	0	0	69	370
Flint.....	11	13	1	2	0	1	0	0	0	1	29
Grand Rapids.....	13	7	0	0	0	2	0	0	0	0	28
Wisconsin:											
Kenosha.....	2	1	0	0	0	0	0	0	0	3	18
Milwaukee.....	39	39	2	0	0	3	1	0	0	77	152
Racine.....	7	3	0	0	0	0	0	0	0	12	20
Superior.....	4	1	1	0	0	0	0	0	0	3	13
WEST NORTH CEN- TRAL											
Minnesota:											
Duluth.....	11	0	2	0	0	0	1	0	0	5	15
Minneapolis.....	62	23	5	0	0	3	1	1	0	35	124
St. Paul.....	36	4	1	0	0	4	0	0	0	35	66
Iowa:											
Davenport.....	1	0	1	1	0	0	0	0	0	0	33
Des Moines.....	7	21	2	0	0	0	0	0	0	0	2
Sioux City.....	2	0	1	1	0	0	0	0	0	2	29
Waterloo.....	2	46	0	0	0	0	0	0	0	29	66



## City reports for week ended January 26, 1929—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culosis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
WEST NORTH CENTRAL—contd.											
Missouri:											
Kansas City.....	14	11	3	0	0	9	0	0	0	9	123
St. Joseph.....	3	7	0	0	0	1	0	0	0	1	28
St. Louis.....	51	32	2	0	0	13	0	0	0	28	329
North Dakota:											
Fargo.....	2	3	0	0	0	0	0	0	0	0	9
Grand Forks.....	2	1	1	0	—	—	0	0	—	—	—
South Dakota:											
Aberdeen.....	0	0	0	0	—	—	0	0	—	0	—
Sioux Falls.....	2	1	0	0	—	—	0	0	—	0	—
Nebraska:											
Lincoln.....	2	4	0	0	—	—	0	0	—	2	—
Omaha.....	6	8	4	0	0	0	1	0	0	0	65
Kansas:											
Topeka.....	3	6	0	0	0	0	0	0	0	13	19
Wichita.....	6	5	1	0	0	1	0	0	0	2	34
SOUTH ATLANTIC											
Delaware:											
Wilmington.....	7	—	0	—	—	—	0	—	—	—	—
Maryland:											
Baltimore.....	40	35	0	0	0	25	2	0	0	101	146
Cumberland.....	1	1	0	1	0	0	0	0	0	1	16
Frederick.....	1	0	0	0	0	0	0	0	0	5	2
District of Colum- bia:											
Washington.....	27	10	1	0	0	9	1	0	0	32	201
Virginia:											
Lynchburg.....	0	0	0	0	0	0	0	0	0	2	17
Norfolk.....	2	1	0	0	0	0	0	0	0	—	—
Richmond.....	5	4	0	0	0	1	0	0	0	2	56
Roanoke.....	2	0	0	0	0	1	0	0	0	0	21
West Virginia:											
Charleston.....	1	0	0	0	0	1	0	0	0	1	14
Wheeling.....	2	0	0	0	0	0	0	0	0	3	34
North Carolina:											
Raleigh.....	1	1	0	0	0	3	0	0	0	0	19
Wilmington.....	1	1	0	1	0	1	0	0	0	0	13
Winston-Salem.....	2	0	2	0	0	1	0	0	0	3	17
South Carolina:											
Charleston.....	1	1	0	0	0	3	0	0	0	0	31
Columbia.....	0	1	0	1	0	1	0	0	0	0	20
Georgia:											
Atlanta.....	5	5	3	1	0	5	0	1	0	1	101
Brunswick.....	0	0	0	0	0	0	0	0	0	0	1
Savannah.....	1	0	0	0	0	0	1	0	1	6	47
Florida:											
Miami.....	2	1	0	0	0	1	1	0	0	4	27
Tampa.....	1	0	0	0	0	0	2	0	0	8	29
EAST SOUTH CENTRAL											
Kentucky:											
Covington.....	2	8	0	2	0	0	0	0	0	2	32
Louisville.....	6	33	1	0	0	9	1	0	0	9	167
Tennessee:											
Memphis.....	7	15	2	0	0	2	0	0	0	1	113
Nashville.....	2	5	0	0	0	5	0	0	0	2	76
Alabama:											
Birmingham.....	3	6	6	0	0	3	1	0	0	3	96
Mobile.....	0	0	0	0	0	0	0	0	0	10	11
Montgomery.....	0	0	0	0	—	—	0	—	—	—	—
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith.....	1	0	0	0	—	—	0	0	—	0	—
Little Rock.....	1	3	0	0	0	6	0	0	0	2	—
Louisiana:											
New Orleans.....	7	9	0	0	0	17	3	5	1	0	169
Shreveport.....	1	0	0	0	0	—	0	0	0	0	2

## City reports for week ended January 26, 1920—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culosis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
WEST SOUTH CEN- TRAL—contd.											
Oklahoma:											
Oklahoma City.....	2	2	2	0	0	2	0	0	0	2	55
Tulsa.....	2	1	1	3			0	0		1	
Texas:											
Dallas.....	5	6	2	10	0	3	0	0	0	0	70
Fort Worth.....	2	12	1	35	0	6	0	0	0	0	67
Galveston.....	0	2	0	0	0	0	1	1	0	0	14
Houston.....	3	2	2	1	0	4	0	0	0	0	92
San Antonio.....	2	4	0	1	0	8	0	0	0	0	80
MOUNTAIN											
Montana:											
Billings.....	1	0	0	0	0	0	0	0	0	1	5
Great Falls.....	2	2	1	0	0	0	0	0	0	3	6
Helena.....	1	0	0	0	0	0	0	0	0	0	5
Missoula.....	1	0	0	0	0	1	0	0	0	0	6
Idaho:											
Boise.....	1	0	0	0	0	0	0	0	0	0	10
Colorado:											
Denver.....	14	4	2	2	0	10	0	0	0	3	84
Pueblo.....	2	0	0	0	0	0	0	0	0	0	10
New Mexico:											
Albuquerque.....	2	1	0	0	0	8	0	0	0	25	19
Utah:											
Salt Lake City.....	4	6	3	5	0	0	0	0	0	1	38
Nevada:											
Reno.....	0	0	0	0	0	0	0	0	0	0	8
PACIFIC											
Washington:											
Seattle.....	12	1	4	1			0	1		33	
Spokane.....	5	0	6	0			0	0		5	
Tacoma.....	3	1	4	4	0	2	1	1	0	0	30
Oregon:											
Portland.....	7	5	9	16	0	4	0	0	0	0	101
Salem.....	0	0	1	0			0	0		0	
California:											
Los Angeles.....	32	54	6	0	0	24	1	1	0	14	292
Sacramento.....	2	22	1	3	0	4	0	0	0	3	44
San Francisco.....	18	29	2	0	0	10	1	1	1	0	192

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
NEW ENGLAND									
Massachusetts:									
Boston.....	2	2	0	0	0	0	1	0	0
Springfield.....	1	1	0	0	0	0	0	0	0
Worcester.....	0	0	1	0	0	0	0	0	0
MIDDLE ATLANTIC									
New York:									
New York.....	29	24	6	4	0	0	1	1	0
New Jersey:									
Newark.....	2	0	1	0	0	0	0	1	0
Pennsylvania:									
Philadelphia.....	2	1	0	0	0	0	0	0	0
Pittsburgh.....	3	1	0	0	0	0	0	0	0

## City reports for week ended January 26, 1929—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Polio myelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
<b>EAST NORTH CENTRAL</b>									
Ohio:									
Cleveland.....	8	2	0	0	0	0	0	1	0
Indiana:									
Indianapolis.....	0	1	0	0	0	0	0	0	0
Illinois:									
Chicago.....	5	3	0	0	0	0	0	0	0
Michigan:									
Detroit.....	12	4	1	0	0	0	1	0	1
<b>WEST NORTH CENTRAL</b>									
Minnesota:									
St. Paul.....	0	0	1	1	0	0	0	0	0
Iowa:									
Des Moines.....	1	0	0	0	0	0	0	0	0
Missouri:									
Kansas City.....	1	1	0	0	0	0	0	0	0
St. Joseph.....	1	0	0	0	0	0	0	0	0
St. Louis.....	10	1	0	0	0	0	0	0	0
North Dakota:									
Fargo.....	1	0	0	0	0	0	0	0	0
<b>SOUTH ATLANTIC</b>									
Maryland:									
Baltimore.....	1	0	0	0	0	0	1	1	0
Virginia:									
Lynchburg.....	0	0	0	0	0	1	0	0	0
Richmond.....	0	0	0	1	0	1	0	0	0
North Carolina:									
Raleigh.....	0	0	0	0	0	1	0	0	0
Winston-Salem.....	0	0	0	0	1	1	0	0	0
South Carolina:									
Charleston <sup>1</sup> .....	1	0	0	0	1	0	0	0	0
Columbia.....	0	0	0	0	0	1	0	0	0
Georgia:									
Atlanta.....	1	1	0	0	0	0	0	0	0
Savannah.....	0	0	0	0	1	1	0	0	0
<b>EAST SOUTH CENTRAL</b>									
Tennessee:									
Memphis.....	0	0	0	0	0	1	0	0	0
Nashville.....	0	0	0	0	0	1	0	0	0
Alabama:									
Birmingham.....	0	0	1	1	0	0	0	0	0
Mobile.....	0	0	0	0	1	1	0	0	0
<b>WEST SOUTH CENTRAL</b>									
Arkansas:									
Little Rock.....	0	0	0	0	0	1	0	0	0
Louisiana:									
New Orleans.....	1	0	0	0	2	2	0	0	0
Oklahoma:									
Tulsa.....	3		0		0			0	
Texas:									
Houston.....	0	2	0	0	0	0	0	0	0
<b>MOUNTAIN</b>									
Montana:									
Great Falls.....	1	1	0	0	0	0	0	0	0
Colorado:									
Denver.....	2	2	0	0	0	0	0	0	0
Utah:									
Salt Lake City.....	2	1	0	0	0	0	0	0	0
<b>PACIFIC</b>									
Washington:									
Spokane.....	2		0		0		0	0	
Oregon:									
Salem.....	0		1		0			0	
California:									
Los Angeles.....	2	0	0	0	0	0	1	1	1
Sacramento.....	3	1	0	0	0	0	0	0	0
San Francisco.....	7	3	0	1	0	0	0	0	0

<sup>1</sup> Dengue: 2 cases at Charleston, S. C.

The following table gives the rates per 100,000 population for 98 cities for the 5-week period ended January 26, 1929, compared with those for a like period ended January 28, 1928. The population figures used in computing the rates are approximate estimates, authoritative figures for many of the cities not being available. The 98 cities reporting cases had estimated aggregate populations of more than 31,000,000. The 91 cities reporting deaths had nearly 30,000,000 estimated population. The number of cities included in each group and the estimated aggregate populations are shown in a separate table below.

Summary of weekly reports from cities, December 23, 1928, to January 26, 1929—  
Annual rates per 100,000 population compared with rates for the corresponding period of 1927-28<sup>1</sup>

## DIPHTHERIA CASE RATES

	Week ended—									
	Dec. 29, 1928	Dec. 31, 1927	Jan. 5, 1929	Jan. 7, 1928	Jan. 12, 1929	Jan. 14, 1928	Jan. 19, 1929	Jan. 21, 1928	Jan. 26, 1929	Jan. 28, 1928
98 cities.....	131	185	148	<sup>2</sup> 170	139	204	<sup>3</sup> 132	193	<sup>4</sup> 125	194
New England.....	170	165	163	149	183	200	179	168	201	172
Middle Atlantic.....	155	220	178	202	157	254	158	253	136	252
East North Central.....	133	200	153	176	124	220	<sup>3</sup> 107	192	122	166
West North Central.....	119	125	161	96	158	111	146	139	115	131
South Atlantic.....	100	128	111	<sup>2</sup> 160	118	155	99	155	<sup>4</sup> 77	149
East South Central.....	95	112	88	105	190	56	170	105	136	84
West South Central.....	172	261	111	243	119	207	79	154	119	166
Mountain.....	18	63	70	71	87	115	61	168	52	124
Pacific.....	43	141	60	123	67	143	107	125	95	161

## MEASLES CASE RATES

	158	321	196	<sup>2</sup> 510	235	551	<sup>3</sup> 218	611	<sup>4</sup> 202	571
98 cities.....	158	321	196	<sup>2</sup> 510	235	551	<sup>3</sup> 218	611	<sup>4</sup> 202	571
New England.....	676	709	964	917	873	1,021	706	1,249	672	1,078
Middle Atlantic.....	77	330	80	468	94	501	70	480	86	484
East North Central.....	207	159	230	265	315	300	<sup>3</sup> 302	325	380	368
West North Central.....	201	46	198	135	394	110	423	260	627	139
South Atlantic.....	68	828	114	<sup>2</sup> 1,403	66	1,366	84	1,624	<sup>4</sup> 71	1,460
East South Central.....	15	396	14	<sup>2</sup> 1,118	7	2,020	34	1,845	27	1,564
West South Central.....	4	112	24	203	43	272	12	567	36	507
Mountain.....	106	36	383	62	427	106	853	97	871	89
Pacific.....	84	282	40	384	115	527	57	532	77	435

## SCARLET FEVER CASE RATES

98 cities.....	184	209	195	<sup>2</sup> 206	221	260	<sup>3</sup> 225	268	<sup>4</sup> 231	278
New England.....	308	346	296	340	317	398	296	508	319	372
Middle Atlantic.....	138	200	148	196	190	266	183	269	217	289
East North Central.....	220	257	239	233	251	285	<sup>3</sup> 258	286	262	301
West North Central.....	261	192	258	203	283	262	248	225	296	274
South Atlantic.....	130	148	154	<sup>2</sup> 158	124	182	122	210	<sup>4</sup> 116	191
East South Central.....	259	117	197	63	156	63	231	91	231	112
West South Central.....	160	124	142	161	182	126	190	89	103	130
Mountain.....	27	233	113	195	157	301	183	266	164	301
Pacific.....	151	125	185	184	282	220	389	241	267	297

<sup>1</sup> The figures given in this table are rates per 100,000 population, annual basis, and not the number of cases reported. Populations used are estimated as of July 1, 1929, 1928, and 1927, respectively.

<sup>2</sup> Atlanta, Ga., not included.

<sup>3</sup> South Bend, Ind., not included.

<sup>4</sup> Wilmington, Del., not included.



Summary of weekly reports from cities, December 23, 1928, to January 26, 1929—  
Annual rates per 100,000 population compared with rates for the corresponding  
period of 1927-28—Continued

## SMALLPOX CASE RATES

	Week ended—									
	Dec. 29, 1928	Dec. 31, 1927	Jan. 5, 1929	Jan. 7, 1928	Jan. 12, 1929	Jan. 14, 1928	Jan. 19, 1929	Jan. 21, 1928	Jan. 26, 1929	Jan. 28, 1928
98 cities.....	4	15	3	<sup>1</sup> 17	5	23	<sup>3</sup> 7	22	<sup>4</sup> 8	23
New England.....	2	0	0	0	2	0	0	0	0	0
Middle Atlantic.....	0	0	1	0	0	0	0	0	0	0
East North Central.....	3	12	6	9	3	7	<sup>1</sup> 6	9	8	13
West North Central.....	10	79	2	106	6	147	13	121	2	121
South Atlantic.....	2	4	0	<sup>1</sup> 13	2	29	6	15	<sup>4</sup> 8	15
East South Central.....	5	10	7	7	41	7	7	70	14	28
West South Central.....	12	4	4	16	16	28	47	4	47	20
Mountain.....	35	143	35	106	78	142	17	106	61	133
Pacific.....	15	29	5	26	7	31	17	64	20	59

## TYPHOID FEVER CASE RATES

98 cities.....	5	7	4	<sup>1</sup> 5	4	8	<sup>3</sup> 4	6	<sup>4</sup> 4	8
New England.....	2	14	5	7	2	14	5	9	2	21
Middle Atlantic.....	4	4	2	3	4	5	4	3	2	5
East North Central.....	5	5	3	3	1	3	<sup>1</sup> 3	6	4	5
West North Central.....	6	10	0	2	0	8	2	2	4	8
South Atlantic.....	5	13	9	<sup>1</sup> 17	4	2	6	6	<sup>4</sup> 2	8
East South Central.....	5	10	0	28	7	77	20	42	7	28
West South Central.....	8	21	4	0	28	20	8	12	24	41
Mountain.....	9	18	9	9	0	0	0	9	0	0
Pacific.....	8	0	7	5	0	10	2	8	10	0

## INFLUENZA DEATH RATES

91 cities.....	172	19	234	<sup>1</sup> 20	241	25	<sup>3</sup> 183	26	<sup>4</sup> 131	20
New England.....	14	5	48	16	100	7	143	18	<sup>6</sup> 206	7
Middle Atlantic.....	129	14	165	13	161	21	152	19	134	16
East North Central.....	201	10	238	10	236	13	<sup>3</sup> 148	17	70	12
West North Central.....	169	8	240	6	155	21	123	28	69	15
South Atlantic.....	260	22	343	<sup>2</sup> 23	395	40	289	29	<sup>4</sup> 189	11
East South Central.....	193	58	970	130	1,592	115	940	153	615	100
West South Central.....	373	81	560	83	467	67	333	67	207	79
Mountain.....	265	72	218	53	165	62	157	71	70	80
Pacific.....	182	31	134	24	79	37	79	17	46	20

## PNEUMONIA DEATH RATES

91 cities.....	303	156	383	<sup>1</sup> 175	408	196	<sup>3</sup> 266	182	<sup>4</sup> 329	164
New England.....	159	146	201	103	323	179	446	156	<sup>6</sup> 502	126
Middle Atlantic.....	293	158	395	186	443	214	446	193	454	183
East North Central.....	382	135	466	140	414	158	<sup>3</sup> 280	137	184	121
West North Central.....	242	109	216	187	285	168	240	205	189	147
South Atlantic.....	330	187	360	<sup>2</sup> 238	485	243	474	230	<sup>4</sup> 385	214
East South Central.....	246	191	533	268	659	253	452	207	355	160
West South Central.....	402	306	670	241	528	291	398	312	308	271
Mountain.....	363	197	174	195	200	168	200	186	157	177
Pacific.....	169	138	148	175	134	142	125	142	128	145

<sup>1</sup> Atlanta, Ga., not included.

<sup>2</sup> South Bend, Ind., not included.

<sup>4</sup> Wilmington, Del., not included.

<sup>3</sup> Hartford, Conn., and Wilmington, Del., not included.

<sup>6</sup> Hartford, Conn., not included.



Number of cities included in summary of weekly reports, and aggregate population of cities of each group, approximated as of July 1, 1929 and 1928, respectively

Group of cities	Number of cities reporting cases	Number of cities reporting deaths	Aggregate population of cities reporting cases		Aggregate population of cities reporting deaths	
			1929	1928	1929	1928
Total.....	98	91	31,568,400	31,052,700	29,935,100	29,498,600
New England.....	12	12	2,305,100	2,273,900	2,305,100	2,273,900
Middle Atlantic.....	10	10	10,809,700	10,702,200	10,809,700	10,702,200
East North Central.....	16	16	8,181,900	8,001,300	8,181,900	8,001,300
West North Central.....	12	9	2,712,100	2,673,300	1,736,900	1,708,100
South Atlantic.....	19	19	2,783,200	2,732,900	2,783,200	2,732,900
East South Central.....	6	5	767,900	745,500	704,200	682,400
West South Central.....	8	7	1,319,100	1,289,900	1,285,000	1,256,400
Mountain.....	9	9	598,800	590,200	598,800	590,200
Pacific.....	6	4	2,090,600	2,043,500	1,590,300	1,551,200

## FOREIGN AND INSULAR

### INFLUENZA IN EUROPE

Information received from the health section of the League of Nations reports that influenza deaths in the towns of England and Wales increased to 652 during the week ended February 2, of which 198 occurred in London, 75 in Liverpool, 43 in Manchester, 25 in Portsmouth, and 19 in Southampton. The death rate in Belfast was 52 per 1,000 population per annum, and in eight towns of the Glasgow industrial area it was over 40 per 1,000.

The epidemic is present in mild type in Norway, Denmark, southern Finland, and northern Estonia. It is now appearing in Holland and northern France. The epidemic is decreasing in eastern Germany. Western and southern Germany are not affected. No unusual prevalence of influenza has been reported in southern and eastern Europe, including Russia.

### ANGOLA

*Communicable diseases—October, 1928.*—During the month of October, 1928, cases of communicable diseases were reported from Angola as follows:

Disease	Cases	Disease	Cases
Ancylostomiasis.....	35	Mumps.....	13
Cerebrospinal meningitis.....	3	Pneumonia and broncho-pneumonia.....	96
Bilharzia.....	169	Puerperal fever.....	1
Chicken pox (including alastrim).....	41	Relapsing fever.....	9
Dengue.....	1	Scabies.....	122
Diphtheria.....	2	Scurvy.....	4
Dysentery.....	79	Tetanus.....	4
Erysipelas.....	1	Trypanosomiasis.....	377
Influenza.....	409	Tuberculosis.....	31
Leprosy.....	15	Veneral diseases.....	343
Malaria.....	888	Whooping cough.....	23
Malarial hemoglobinuria.....	16	Yaws.....	382
Measles.....	159		

### DENMARK

*Communicable diseases—November, 1928.*—During the month of November, 1928, communicable diseases were reported in Denmark as follows:

Disease	Cases	Disease	Cases
Actinomycosis	1	Paratyphoid fever	53
Broncho-pneumonia	1,451	Pneumonia	231
Cerebrospinal meningitis	3	Polio-myelitis	8
Chicken pox	38	Puerperal fever	19
Diphtheria	673	Recurrent fever	25
Erysipelas	312	Scabies	974
German measles	3	Scarlet fever	257
Influenza	3,480	Tetanus	2
Jaundice	156	Tuberculosis	298
Lethargic encephalitis	5	Typhoid fever	10
Measles	975	Undulant fever	126
Mumps	721	Whooping cough	2,092

1 Reported by the State Serum Institute.

## MEXICO

*Meningococcus meningitis*.—According to information dispatched February 2, 1929, there have been six cases of meningococcus meningitis, with three deaths, reported in Nogales, Mexico. In the town of Pitioquito there have been nine cases with four deaths. The Mexican authorities are taking very active measures to control the epidemic.

*Vera Cruz—Communicable diseases—December 16, 1928–January 19, 1929*.—During the five weeks from December 16, 1928, to January 19, 1929, deaths from certain communicable diseases were reported from Vera Cruz, Mexico, as follows:

Disease	Week ended—				
	Dec. 22, 1928	Dec. 29, 1928	Jan. 5, 1929	Jan. 12, 1929	Jan. 19, 1929
Bronchitis		3	3	1	
Cancer	2	2	2	1	2
Cerebrospinal meningitis		1			
Erysipelas	1				
Gastrointestinal disorders	13	11	9	7	11
Hookworm disease				2	2
Influenza	1				1
Malarial fever			2		
Pneumonia	2		2	4	
Tetanus		1	1		
Tuberculosis	6	9	6	8	6
Typhoid fever		3			
Whooping cough	1				

## PORTO RICO

*San Juan—Communicable diseases—November 25–December 29, 1928*.—During the five weeks from November 25 to December 29, 1928, cases of communicable diseases were reported from San Juan, P. R., as follows:

Disease	Week ended—				
	Dec. 1	Dec. 8	Dec. 15	Dec. 22	Dec. 29
Diphtheria			1	2	2
Influenza		1			
Malaria	11	15	6	10	6
Measles	1	7	3	3	1
Mumps					1
Pellagra	1	1			
Syphilis	5	4	3	3	
Tetanus		1			
Tuberculosis	10	14	5	13	1
Typhoid fever		2	1		

## TRINIDAD

*Vital statistics—Port of Spain—December, 1928—Comparative.*—The following statistics for the month of December, 1928, with comparisons for December of the years 1924 to 1927, are taken from a report issued by the public health department of Port of Spain:

*Month of December*

	1924	1925	1926	1927	1928
Number of births.....	157	178	143	174	174
Births per 1,000 population.....	29.29	32.77	26.09	31.51	31.33
Number of deaths.....	173	114	142	146	118
Deaths per 1,000 population.....	32.27	20.99	25.91	26.44	21.24
Deaths under 1 year.....	34	17	29	25	16
Deaths under 1 year per 1,000 births.....	216.56	95.51	202.80	143.77	91.95

## YUGOSLAVIA

*Communicable diseases—December, 1928.*—During the month of December, 1928, communicable diseases were reported in Yugoslavia, as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Anthrax.....	55	6	Measles.....	1,952	28
Cerebrospinal meningitis.....	5	1	Rabies.....	1	1
Diphtheria.....	496	102	Scarlet fever.....	2,747	503
Dysentery.....	42	4	Tetanus.....	11	6
Leprosy.....	1		Typhoid fever.....	369	53
Lethargic encephalitis.....	2		Typhus fever.....	7	







Place	Aug. 1928	Sep- tember, 1928	October, 1928			November, 1928			December, 1928			Jan. 1-10, 1929
			1-10		11-20	1-10		11-20	1-10	11-20	21-31	
			1-10	11-20	21-31	1-10	11-20	21-31	1-10	11-20	21-31	
Indo-China (French) (see also table above):												
Annan.....			4	5	2			5				
Cambodia.....	11	4	6	19				17				26
Cochin-China.....	38	16	6	26	20		4	81		31	346	282
Tonkin.....	28	28	6				48					
Kwangchow-Wan.....	2	1					27	1				

## PLAGUE

Place	Aug. 26- Sept. 22, 1928	Sept. 23- Oct. 20, 1928	Week ended—														
			Oct. 27, 1928	November, 1928				December, 1928				January, 1929				Feb. 2, 1929	
				3	10	17	24	1	8	15	22	29	5	12	19		26
Algeria:																	
Algiers.....																	
Oran.....																	
Philippeville.....																	
Argentina: 1																	
Buenos Aires 1																	
Batamarca Province: Retreo																	
Cordoba Province.....																	
Canada:																	
Laborde.....																	
July Province: Perico 1																	
Rosario 1																	
Santiago del Estero.....																	
Tucuman Province: El Mollar																	
Azores: St. Michaels Island.....																	

1 During the period from Nov. 10 to Dec. 11, 1928, 13 cases of plague were reported at El Mollar, Tucuman Province, Argentina. During the same period 1 case of plague was reported at Chiplon and 1 at Ucacha, both in Cordoba Province, Argentina.

1 18 plague-infected rats were reported at Buenos Aires, Argentina, from July 1 to Dec. 31, 1928.

1 3 cases of plague reported Feb. 7, 1929, at Perico, Province of Jujuy, Argentina.

1 1 case of plague reported Feb. 7, 1929, at Rosario, Argentina.

**CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued**

**PLAGUE—Continued**

(C indicates cases; D, deaths; P, present)

[illegible]

Java—	Batavia and West Java.....	49	29	12	—	5	6	13	10	10	10	9	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—</
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## CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

## PLAGUE—Continued

[C indicates cases; D, deaths; F, present]

Week ended—

Place	Aug. 20- Sept. 27, 1928	Sept. 28- Oct. 5, 1928	November, 1928								December, 1928						January, 1929				Feb. 2, 1929
			Oct. 1928																		
			3	10	17	24	1	8	15	22	29	5	12	19	26						
Iraq: Baghdad.....	4	2	1	1	5	3	2	4	1	1	2	5	1	2	1	3					
Madagascar (see also table below): Tamatave.....	9	13	3	1	3	2	1	2													
Nigeria: Lagos.....	60	88	19	25	15	15	9	11	8	5	4	2	1								
Plague-infected rats.....	59	88	13	24	14	14	9	10	8	5	3	2	1								
Paraguay: Asuncion.....	62	91	56	33			30														
Peru (see table below).....		3																			
Senegal (see table below).....																					
Siam.....																					
Bangkok.....					1				9				4								
Panknampo.....					1				8				3								
Straits Settlements:					1								2								
Ipoh.....	2												1								
Penang.....	2																				
Syria (see table below).....		1																			
Turkey:																					
Adalia.....		1			1																
Constantinople.....																					
Union of South Africa:																					
Cape Province.....						1															
Orange Free State.....																					
Union of Socialist Soviet Republics:																					
Astrakan.....																					
Kirghiz District.....	54																				
Kraenolark District.....	1																				
Chita District.....																					

Kalmouks District.....



Place	Aug- ust, 1928	Sep- tem- ber, 1928	Octo- ber, 1928	No- vem- ber, 1928	De- cem- ber, 1928
Kalmouka District.....	C	10	7		
Kasacka.....	D				
Ural Government.....	D				
Uruguay: Rivera.....	C			1	
On vessel:					
S. S. Automodon, at Penang, Straits Settlements.....	C				1
S. S. Halydan, at Bangkok, from Singapore.....	C				
S. S. Sjomand, at Alexandria, from Batoum.....	C				
Place	Aug- ust, 1928	Sep- tem- ber, 1928	Octo- ber, 1928	No- vem- ber, 1928	De- cem- ber, 1928
British East Africa (see also table above):					
Kenya.....	144	15	37	16	15
Uganda.....	54			2	
Ecuador: Guayaquil.....	132	128	134		
Plague-infected rats.....	141	98	106	31	20
Greece (see also table above).....		3	2	8	7
Indo-China (see also table above).....		27	21	29	75
Madagascar (see also table above):					
Antsirabe Province.....	2	5	2		1
Ambositra Province.....	65	59	58		
Antsiranobe Province.....	61	51	84		
Itasy Province.....	3		8	1	
Majunga.....		10	2	1	
Moramanga Province.....	2	2	5		
Tivakane.....	2				
Tivakane <sup>1</sup> .....	11	20	38	24	
Syria: Beirut.....	10	18	35	24	
Madagascar—Continued.					
Tamatave.....					
Tananarive Province.....					
Peru.....					
Senegal.....					
Baol <sup>1</sup> .....					
Cayor <sup>1</sup> .....					
Fatick <sup>1</sup> .....					
Loug <sup>1</sup> .....					
Rufisque <sup>1</sup> .....					
Thies <sup>1</sup> .....					
Tivakane <sup>1</sup> .....					
Syria: Beirut.....					

<sup>1</sup> Reports incomplete.

## CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

## SMALLPOX

[C indicates cases; D, deaths; P, present]

Place	Aug. 26- Sept. 23, 1928	Sept. 24- Oct. 20, 1928	Week ended—														
			Oct. 27, 1928	November, 1928				December, 1928				January, 1929					
				3	10	17	24	1	8	15	22	29	5	12	19	26	
Algeria:																	
Algiers.....		4			1	1		1									
Oran.....	2	21					1		7						1	1	
Arabis: Aden.....	1																
Brazil (see table below).																	
British East Africa (see also table below), Kenya—																	
Mombasa.....																	
British South Africa:																	
Northern Rhodesia.....																	
Southern Rhodesia.....	382	105	57	270		15											
Tanganyika.....	22	7	5	7		2											
Canada:	5	9	1					2		3							
Alberta.....					1												
Edmonton.....	6	4	1			3	7	1	13		1	11	1	1	1	3	
British Columbia—Vancouver.....																	
Manitoba.....	5	16		12		9	5	4	8	8	13	9	17	1	1	1	
Winnipeg and vicinity.....	1			14		16	13	5	1	7	16	2	1	4	3		
Nova Scotia.....																	
Ontario.....	3	15	5	4	3	4	4	4	2	5	4	1	14	5	1	1	
Kingston.....	1	1	1														
North Bay.....			2	1	2	1	1			1	1						
Ottawa.....	6	2	1														
Sarnia.....																	
Quebec.....	28	75	20	9	40	40	25	72	20	8	10	8	7	12	9	5	
Montreal.....	12	4	7	1	2			1	1	1	2	1	2	3	5	4	
Quebec.....	13	12	3	1	3	5	3	1	1	1	1		1	4	2		
Saskatchewan.....	3	1	6				11	12	11	18	1	6	7	4	3		
Moose Jaw.....	2					2											
Regina.....	1						2						1		2	4	
China:																	
Amoy.....	P	P			P					1	1	2	1				
Canton.....	P	P					1		4	9	7			11	14	2	1



## CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

## SMALLPOX—Continued

[C indicates cases; D, deaths; F, present]

Place	Aug. 26- Sept. 22, 1928	Sept. 23- Oct. 20, 1928	Week ended—														
			Oct. 27, 1928	November, 1928				December, 1928				January, 1929					
				3	10	17	24	1	8	15	22	29	5	12	19	26	
Great Britain—Continued																	
Scotland—																	
Aberdeen	3																
Dundee	1	3	1	1													
Greece (see table below).																	
Hedjaz																	
India	4,553	2,792	617	727	824	872	945										
Bombay	1,116	604	157	191	214	274	201										
Calcutta	14	24	5	2	1	1	1	2	2	6	3	10	21	34			
Karachi	11	12	2	2	1	1	1	2	2	2	2	1	6	14	13		
Madras	13	7						3	4	2	6		4	8			
Moulmein	17	4	1	1	1	1	2	1	2	2	3		3	5			
Negapatam																	
Rangoon	90	77	31	9	11	20	16	18	15	9	8	5	36	45	50		
Tuticorin	21	23	5	8	3	6	4	6	6		2	1	4	18	6		
Vizagapatam	4	2					2	2		1			1	3	2		
Moulmein	4																
Negapatam	46	51	7	13	12	6	5	16	7	5		4	3	1	3		
Rangoon	10	11	2	3	1	2	1	2	1	2			1				
Tuticorin																	
Vizagapatam	14	1	1														
India (French):	3																
Chandernagor	9	4	3														
Pondicherry Province	92	111	34	23	12	15	18	13	17								
Indo-China (see also table below):	87	73	27	17	11	12	16	13	17								
Pnompenh	19	28	12			6	5	8	23	8	13	10	6	9	11		
Saigon	15	10	2			1	2	4	9	3	8	6	1	6	8		
Saigon	1	3	2			1	2	4	9	3	8	6	1	6	8		
Iraq																	
Baghdad	34	38	10	7	9	14	14	9	17	6	5	6	7	2	13	1	
Baghdad	17	12	8	1	4	10	9	18	13	5	10	1	6	12			

Barrs

Hillah Liwa



[illegible]

## CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

## SMALLPOX—Continued

[C indicates cases; D, deaths; P, present]

Place	August, 1928			September, 1928			October, 1928			November, 1928			December, 1928			Jan. 1-10, 1929
	1-10	11-20	21-30	1-10	11-20	21-30	1-10	11-20	21-31	1-10	11-20	21-31	1-10	11-20	21-31	
Indo-China (see also table above).....	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	74
Ivory Coast.....	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
Senegal.....	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
Sudan (French).....	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
Syria:																
Aleppo.....	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
Beirut.....	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	

Place	August, 1928		September, 1928		October, 1928		November, 1928		December, 1928		January, 1929	
	1-10	11-20	1-10	11-20	1-10	11-20	1-10	11-20	1-10	11-20	1-10	11-20
Brazil: Porto Alegre.....	C	C	C	C	C	C	C	C	C	C	C	C
British East Africa: Zanzibar (see also table above).....	C	C	C	C	C	C	C	C	C	C	C	C
Ecuador: Guayaquil.....	C	C	C	C	C	C	C	C	C	C	C	C
France.....	C	C	C	C	C	C	C	C	C	C	C	C

Place	August, 1928		September, 1928		October, 1928		November, 1928		December, 1928		January, 1929	
	1-10	11-20	1-10	11-20	1-10	11-20	1-10	11-20	1-10	11-20	1-10	11-20
Brazil: Porto Alegre.....	C	C	C	C	C	C	C	C	C	C	C	C
British East Africa: Zanzibar (see also table above).....	C	C	C	C	C	C	C	C	C	C	C	C
Ecuador: Guayaquil.....	C	C	C	C	C	C	C	C	C	C	C	C
France.....	C	C	C	C	C	C	C	C	C	C	C	C

## TYPHUS FEVER

Place	August, 1928			September, 1928			October, 1928			November, 1928			December, 1928			January, 1929		
	1-10	11-20	21-30	1-10	11-20	21-30	1-10	11-20	21-31	1-10	11-20	21-31	1-10	11-20	21-31	1-10	11-20	21-31
Algeria:																		
Algiers.....	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
Oran.....	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
Bulgaria.....	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
China:																		
Hong Kong.....	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
Shanghai.....	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
Tientsin.....	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
Yokohama.....	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
Chile: Valparaiso.....	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C

China:  
Hong Kong

[illegible]

**CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued—**

## TYPHUS FEVER—Continued

[C indicates cases; D, deaths; P, present]

Place	August, 1928	September, 1928	October, 1928	November, 1928	December, 1928
Chosen.....	41	36	—	—	—
Chempulpo.....	6	2	—	—	—
Seoul.....	1	2	1	—	—
Greece: Athens.....	—	1	3	—	—
		1	1	4	1
Lithuania.....	—	—	—	—	—
Turkey.....	—	—	—	—	—
Yugoslavia.....	—	—	—	—	—
	15	1	—	—	—
	2	0	4	—	—
	2	6	1	17	—
	—	—	—	1	—

## YELLOW FEVER

[illegible]

at 29 cases of yellow fever were reported at Rio de Janeiro during January, 1929, almost all suburban; 14 deaths in the rural zone.